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THE USEFUL SPECIES OF VIBURNUM.

By John M. Maisch.

Read at the Pharmaceutical Meeting, January 15, 1878.

The genus Viburnum, which belongs to the natural order Caprifoliaceæ, tribe Sambuceæ, attracted my attention more closely when, in July last, a correspondent in Georgia sent me some branches of a woody plant, stating that the specimens came from near Orange Springs, Florida, where it was regarded as possessing valuable medicinal properties as a substitute for quinia; the shrub was said to bear a small black berry, and to be called there *black haw*, but it was mentioned that it differed from what is known by the same name in other parts of the country. Although the specimen was not accompanied by flowers or fruit, its characters were such as to lead to the supposition that it might belong to the genus Viburnum, and this was verified by comparing it with the plants in the College herbarium, with one of which it entirely agrees.

Viburnum obovatum, *Walt.*—This species is mentioned in Gray's "Manual" and in Chapman's "Flora of the Southern United States," the latter of which describes it as a shrub or small tree, while the former states it to be a shrub 2 to 8 feet high. It occurs on river banks from Virginia to Florida and westward. The branches are opposite and covered with a thin brown or reddish-grey bark, which adheres firmly to the white wood; in the youngest branches the bark is more green, but soon becomes covered with minute brownish, corky warts, which, on becoming confluent, give the older bark a somewhat irregular striate appearance. A distinct ridge runs from the base of each petiole downward to the next internode, and may be observed, also, on somewhat older branches, but gradually becomes indistinct through the development of the surrounding corky tissue. The leaves are small,

about ½ to 1 inch long, opposite, thick, varying in shape from broadly obovate to spatulate, obtuse at the apex, wedge-shaped at the base towards the short petiole, and on the somewhat revolute margin either entire or slightly crenate or denticulate, chiefly towards the apex. Both surfaces are smooth, the upper one being dark-green and glossy, the lower one more greyish-green and marked with numerous minute brownish dots. The inflorescence consists of small sessile three-rayed cymes, with white perfect flowers, which produce small ovoid-oblong black and one-seeded drupes. The wood is tasteless, the bark has quite a distinct bitter taste; but the bitterness of the leaves is by far more persistent. As far as may be judged from the taste, the leaves would appear to mainly possess whatever medicinal virtue may reside in the plant; how effectual they may be as an antiperiodic I am unable to say.

Viburnum prunifolium, *Lin.*—Dr. Phares, of Newtonia, Miss., in 1867, called attention to the properties of the bark of this species, ascribing to it nervine, antispasmodic, tonic, astringent and diuretic properties, and recommending it as particularly useful in preventing abortion and miscarriage. The species is a tall shrub or small tree, from 10 to 20 feet high, growing in thickets, and is readily recognized by its oval or obovate, sharply serrulate leaves, which are opposite, glossy above, about two inches long and raised upon short, slightly margined petioles. It occurs in the United States from Connecticut south to Florida and west to Mississippi, and is generally known as *black haw*, the fruit being a small edible blue-black drupe, containing a flat and smooth putamen. The leaves, like those of the allied Vib. nudum, *Lin.*, and its variety cassinoides, have occasionally been used as a substitute for tea.

Viburnum opulus, *Lin.*—This species is quite extensively distributed. It is indigenous to Canada and found in the northern United States and southward along the Alleghanies to Maryland; likewise throughout a great portion of Europe and of the northern section of Asia. In favorable localities it attains a height of 12 to 15 feet, but is more generally a lower shrub, with a grey or greyish-brown bark, broad, three-lobed, toothed or crenate leaves, aud globular, acidulous bright red drupes, having a flat, smooth putamen. From the resemblance of the fruit to the cranberry, this species is known on this con-

tinent as *high cranberry* or *cranberry tree*. The shrub preferring moist locations, and the inflorescence resembling that of the elder, its popular German name is *Wasserholder* or *water elder*, sambucus aquaticus, under which name it was formerly officinal. A variety produced by cultivation, has all the flowers sterile and the cymes more or less globular and showy; it is known by the names of *snow-ball* and *Guelder-rose*. The indigenous species was described by Pursh as Vib. oxycoccus and Vib. edule.

The bark and flowers of the water elder were formerly employed for their supposed alterative and antispasmodic properties, the common name *cramp bark* indicating the popular estimation in which it was and is, perhaps, still held in some localities. The fruit has the general properties of acidulous fruits, and where it is frequent is sometimes used in place of the cranberry.

Other North American Species of Viburnum.—Chapman enumerates nine species as being indigenous to the Southern United States east of the Mississippi; of this number only one, V. scabrellum, *Tor. and Gr.*, is peculiar to that section, while the remaining eight are likewise found in the Northern States, some extending into Canada; three additional species are found in the northern section, making twelve indigenous to the United States. Aside from V. prunifolium, referred to before, the following are met with from the New England States southward to Florida, the last two (perhaps all three) being likewise indigenous to Canada; they are: V. nudum, Lin., or *white-rod;* V. dentatum, *Lin.*, known as *arrow-wood*, and V. acerifolium, *Lin.*, or *dockmackie*. Their leaves have a bitter taste, while the bark is bitter and astringent. I am not aware that they are medicinally employed in any part of North America.

Exotic Species.—De Candolle's Prodromus enumerates altogether 47 species, besides four doubtful ones from Japan, which are insufficiently known. Deducting those which are at present regarded as mere varieties of other species, the number is reduced to about 40 species, 28 of which are exotic and distributed over Europe, the Canary Islands, Africa, Asia, the East Indian islands, the West Indies and South America. Only a few of these appear to be put to some use.

Viburnum Dahuricum, Pall., produces a sweet fruit, which is eaten in its native country, the eastern section of Siberia.

Viburnum Tinus, Lin., is known as *laurestine* or *bastard laurel*, the *laurier-thym* of Southern France, on account of its evergreen, glossy leaves, which are entire and slightly revolute at the margin, and hairy on the nerves beneath. It is occasionally met with in cultivation, and produces black-blue drupes, which are said to possess cathartic properties, and are, in some localities of the Mediterranean basin, employed as a remedy in dropsy.

Viburnum odoratissimum, Ker., from China, is likewise occasionally met with as an ornamental shrub; it is evergreen, and has the leaves somewhat toothed and dense cymes of white, very fragrant flowers.

Viburnum Lantana, Lin., occurs in thickets of central and southern Europe, and is known as *lithy tree* and *giddy berry* (Schwindelbeere). The grey-brown, smooth, or, when young, mealy pubescent bark has an acrid taste and produces blisters when applied to the skin in the fresh state. The leaves are oval or ovate, sharply serrate, and mealy pubescent on the lower surface, have an astringent taste, and were formerly used in diarrhœa and similar complaints. The fruit when fully ripe is black, mucilaginous, sweet and astringent, and was employed in various inflammatory diseases. The branches have been used for making pipe stems.

Chemical Investigations.—The species mentioned above comprise all, I believe, which have been more or less employed in medicine, and of those only two have been subjected to chemical investigations.

During his patient and elaborate researches on the constitution of fats, Chevreul observed in the berries of Viburnum opulus a volatile acid, which he recognized as identical with the phocenic acid discovered by him in the fat of the dolphin. Afterwards Dumas proved phocenic acid to be identical with valerianic acid. H. Krämer (1834) examined the volatile acid obtained from the bark of the same shrub, compared this *viburnic* with valerianic acid, and found it to differ from the latter in odor and in the characters of several salts; however, the analytical results obtained by L. von Monro (1845) appear to establish the identity of the two.

Valerianic, besides acetic and tartaric acids, was found by Enz (1863) also in the berries of Viburnum lantana, which contain likewise a tannin coloring iron salts green. Krämer found in the bark examined by him malic acid and tannin, giving a blue reaction with iron salts.

The bitter principle called *viburnin* was isolated by Krämer from the etherial extract of the bark by treating it with hot water, removing the tannin from the solution by means of hide (parchment), and decolorizing afterwards with animal charcoal; the colorless liquid left on evaporation a light-yellowish mass, which yielded a nearly white powder, of neutral reaction and purely bitter taste; it was slightly soluble in water more freely in alcohol, and on incineration left a little ash.

Enz found in the fruit of the species mentioned an acrid and a neutral bitter principle, the latter being yellow, hygroscopic, readily soluble in water, and uncrystallizable, even after dialyzing it; the fruit was boiled with lime and water, the filtrate neutralized with muriatic acid and treated with animal charcoal; the latter was washed, dried and exhausted with alcohol, the solution evaporated to a syrupy consistence, deprived of the acrid principle by ether, and then evaporated.

Leo's experiments (1834) for determining the nature of the coloring matter of the fruit of Vib. opulus, did not yield any important results.

The remaining constituents were those very generally distributed throughout the vegetable kingdom, such as pectin, resin, fat, gum, etc. It would be of interest to ascertain the nature of the bitter principles contained in the two first-named species, both of which are indigenous to this country and called black haw.

NOTES ON A FEW AMERICAN DRUGS.

By John M. Maisch.

(*Read at the Pharmaceutical Meeting, January* 15.)

Pterocaulon pycnostachyum, *Ell.*—An imperfect specimen of the subterraneous portion of this plant was received from Georgia, where it is known as *Blackroot*, and enjoys some local reputation as a valuable alterative. The plant belongs to the nat. ord. Compositæ, has a nearly simple stem, with decurrent lanceolate wavy-margined leaves, which are smooth above and densely tomentose beneath. The inflorescence is spicate, the imbricated involucral scales are diciduous, the ray florets are white and the akenes are crowded with a long hairy pappus. The plant grows in the damp pine barrens of our Southern States, from North Carolina to Florida.

The portion used is the rhizome, which is horizontal or oblique in the ground, and when viewed from above has a compact but knotty

and somewhat contorted appearance. Its most striking peculiarity is, that on the lower side it divides into a number of closely-set tuberous branches, which are nearly perpendicular and somewhat conical, grow to the length of about an inch, and are then suddenly contracted, each into one thin, wiry rootlet of about one to two inches. The rhizome has a thin bark, which is externally of a black color, internally of a greyish-brown, and adheres but loosely to the tough wood, which is greyish or blackish-brown, and divided into numerous very narrow wedges, loosely connected by the shrunken, narrow medullary rays from which the tangential surface, after the removal of the bark, assumes a lace-like appearance. The rootlets have a similar character, only the bark is relatively thicker. The recent rhizome branches, from which over-ground stems had grown, are scarcely one-quarter inch in diameter, but on their lower surface show already the disposition of sending off the perpendicular, cylindric-conical branches described, and as the latter increase in size the stem-bases become almost absolete, and are reduced to mere scars, more or less concave. The entire rhizome is inodorous, and the wood tasteless, while the bark has a slightly acrid and peculiar bitterish taste.

"Blackroot" resembles in color the rhizomes of Cimicifuga racemosa and Leptandra virginica, both of which are easily distinguished from it by the total absence of the perpendicular tuberous branches, and more particularly the former, by its stout ascending rhizome branches and the cross-shaped disposition of the meditullium of its rootlets; and the latter by the horizontal branches of the rhizome, its hard wood and rather large pentagonal or hexagonal central pith.

In regard to its medicinal properties, Dr. F. P. Porcher ("Resources of the Southern Fields and Forests," p. 460) says that much use is made of it as an alterative, and that it is supposed to be possessed of decided value; also, that it is well known as the blackroot of the negroes, and is given in the form of decoction (how strong?) several times a day. Nothing is known of its chemical constituents.

Ledum latifolium, *Ait.*—About nine months ago specimens from a shrubby plant were received from Michigan, in the northern part of which State the Indians claim for it great healing virtues, it being regarded to possess soporific and cathartic properties, and externally used as a sovereign remedy in fever sores, bruises and rheumatism. The dry fruit capsules still attached to the plant made it not difficult

to recognize it as a member of the Ericaceæ and the above-mentioned species of Ledum. Subsequently, the same plant was received from Canada, with the statement that it was popularly used to some extent and considered a valuable medicine; its supposed properties, however, were not mentioned.

The plant is known by the name of James Tea and Labrador Tea, and occurs in British North America, and in the United States, from New England to Wisconsin, and southward to the mountains of Pennsylvania. It occurs in cold bogs and damp woods, grows to the height of two to five feet, and has alternate leaves about one inch in length, somewhat aromatic when bruised, elliptical or oblong, with an entire somewhat revolute margin, dark-green and shining above, whitish beneath, and covered with a rusty wool. The small white flowers have five or sometimes six stamens, and are in umbels situated at the end of the branches; lateral branchlets with a smooth bark, growing from the base of the umbel. The fruit forms a five-celled capsule, which splits from the base upwards, and contains many minute seeds.

In Redwood's "Supplement to the Pharmacopœia," it is stated that the leaves are used for tea, and when infused in beer render it unusually heady, producing headache, nausea, and even delirium, but have, nevertheless, been used, it is said, in tertian agues, dysentery and diarrhœa.

This little shrub is very similar to the *Ledum palustre*, Lin., which is indigenous to Northern Asia, Eastern and Northern and some parts of Central Europe, and likewise to British America. It differs from the former mainly by its linear-lanceolate leaves, the ten stamens of its flowers and its more oval capsules. It was formerly known as *Rosmarinus sylvestris*, but the leaves are readily distinguished from rosemary leaves by the dense, rusty, felt-like hairs on the lower surface. The young and fresh leaves have an agreeable aroma and a bitter and astringent taste; the old and dry leaves are less aromatic. They have been employed in intermittent and other fevers, in cutaneous diseases, croup and other complaints.

L. latifolium has been analyzed by Bacon, but I have not been able to consult his essay. The other species has been repeatedly examined. The most complete, though now not satisfactory, analys is isby Meissner ("Berl. Jahrb.," xiii, p. 170), in which, besides the more generally distributed principles, he found notable quantities of tannin and 1·5 per

cent. of volatile oil. Rauchfuss (1796) had previously obtained 3 per cent. of volatile oil. G. W. Grassmann (1831) noticed for the first time the stearopten, which he obtained to the extent of nearly seven-tenths per cent. of the weight of the fresh plant, and which L. A. Buchner subsequently (1857) subjected to elementary analysis, and found to be a hydrate of a terpene agreeing with the formula $5C_{10}H_{16}.3H_2O$. Willigk also examined the volatile oil, and besides the stearopten, determined it to consist mostly of a hydrocarbon of the same composition as turpentine. Grassmann's ledum-camphor volatilizes readily, its vapor producing headache and vertigo.

It is not improbable that our indigenous species may contain similar principles, and, aside from the volatile oil, may possess the tonic, somewhat astringent and diuretic properties of the leaves of other ericaceæ.

Dioscorea villosa, *Lin.*—This is the only representative in the United States of the nat. ord. Dioscoreaceæ, and is known by the name of *wild yam*. A number of species of the same genus occur in the East and West Indies, the most important of which are Dioscorea alata, *Lin.*; the white negro yam, D. triphylla, *Lin.*; the buck yam, D. trifida, *Lin.*, or Indian yam, D. bulbifera, *Lin.*, the Ceylon white yam and several others comprised in D. sativa of *Linnæus*. They are generally cultivated in tropical countries for their tubers, which attain a considerable size, weighing frequently thirty to forty pounds, and, though quite acrid in their fresh state, are cooked and used as food. They contain starch as their valuable constituent, which appears generally to be about 15 to 18 per cent. of the weight of the fresh tuber, but may occasionally reach 24 per cent., according to Sheir (1847), or according to Grouven (1856) fall to 8 per cent.

The rhizome of the indigenous species has a very different appearance.

The wild yam occurs throughout the United States from New England southward to Florida and westward to the Mississippi, and is quite common in the southern section. It grows in thickets in moist localities, its slender herbaceous stems running over bushes and attaining a length of 10 to 15 feet and more. The plant is dicœcious, the greenish staminate flowers are in paniculate hanging bunches, the pistillate flowers in simple drooping racemes. The leaves are quite variable, frequently alternate, but sometimes opposite or even in whorls of 4 to 6; the latter appears to occur oftener in the South. The leaves are

broadly ovate, with a heart-shaped base, entire or wavy at the margin, conspicuously pointed, with 9 to 11 ribs, nearly smooth above and more or less downy but never villous beneath. The fruit forms a triangular capsule, which is conspicuously winged on the angles, and the pendulous bunches of which are quite striking and make the plant easy to identify.

The rhizome is horizontal, about one-half inch in diameter, somewhat flattened from above, repeatedly forked or branched in various directions, so that the entire rhizome covers a space 6 to 12 inches in diameter, the branches bearing a slight resemblance to ginger. Upon the upper surface at irregular distances are the circular, more or less concave scars, left by the overground stems; beneath and on the sides, at a distance of about half an inch, are the simple wiry rootlets about 2 to 4 inches long. Rhizome and rootlets are of a light or yellowish-brown color, and break with some difficulty, exhibiting a compact white tissue with numerous scattered wood bundles of a yellowish color. Odor is absent, the taste at first insipid, soon becomes strongly acrid.

It is regarded to possess antispasmodic, diaphoretic, expectorant and emetic properties, and has, among other complaints, been recommended in bilious colic in the form of an infusion, made with one ounce to the pint, one-half being taken at a dose. In Virginia, and probably in other States, it is known among the negroes as *rheumatism-root*, it being considered a sure cure in that complaint.

Continued boiling impairs the acrid properties of wild yam, the principle being either volatilized or altered by heat; it has not been investigated. The rhizome contains also a considerable proportion of starch.

THE BEDFORD SPRINGS.

By Henry G. Debrunner, Chemist.

I. *Bedford Mineral Springs.*—The water of this spring possesses a strictly saline character; it is perfectly clear, inodorous and of a slightly saline taste. Its reaction on litmus is neutral. One liter, evaporated to dryness on the water bath, gave 3·2592 grams of residue. Another sample, taken personally by Mr. James Park, Jr., left 3 2552 grams of saline residue per liter, the weight of which decreased on subsequent ignition to 2·5675 grams, or ·25675 per cent. of ignited saline matter.[1]

[1] This loss on ignition is due to the elimination of crystal water on heating.

The temperature of the spring has been found 58°F., while that of the surrounding air was 70°F. Specific gravity, 1·0035. 10,000 parts of this water contain the following quantities of constituents:

Chloride of sodium, NaCl,	0·0978
Sulphate of sodium, Na_2SO_4,	3·5982
Sulphate of magnesium, $MgSO_4$,	5·4810
Sulphate of calcium, $CaSO_4$,	15·1971
Carbonate of calcium, $CaCO_3$,	1·2556
Carbonate of strontium, $SrCO_3$,	trace
Alumina, Al_2O_3,	trace
Iron,	none
Organic matter,	none
Water, H_2O,	9974·3703
	10000·0000

Free carbonic acid, 0·42 parts, equal to 21·3 cc. per liter (32°F., 760 mm. Hg).

Combined carbonic acid,	0·5525	in 10,000 parts
Semi-combined carbonic acid,	0·5525	
Total carbonic acid,	1·57	in 10,000 parts
Total Chlorine, Cl,	0·0593	" "
Total sulphuric acid, SO_3,	14·6142	" "
Total sodium, Na,	1·2041	" "

The saline compounds were calculated from the data obtained as follows:

Cl as *NaCl*.

(Total Na) minus (Na of NaCl) as Na_2SO_4.

MgO as $MgSO_4$.

(Total SO_3) minus (SO_3 of Na_2SO_4 and $MgSO_4$) as $CaSO_4$.

(Total CaO) minus (CaO of $CaSO_4$) as $CaCO_3$.

The latter result was confirmed by a direct estimation of CO_2 in the dry residue.

The water was also examined for the following constituents, which, however, were found to be absent, viz: sulphur, ammonia, phosphoric acid, arsenic, nitric acid, potassa, lithia, iodine and bromine.

Quantity taken for analysis, ten liters. I add an analysis of the same water, made in 1825 by Dr. Church, of Pittsburgh, Pa.

One quart contains:

	According to Dr. Church, 1825.	H. G. Debrunner, 1877.
Sulphate magnesium,	20 grains	9⅔ grains
Sulphate calcium,	3¾	26½
Chloride sodium,	2½	⅙
Chloride calcium, (?!)	¾	none
Carbonate iron,	1¼	none
Garbonate calcium,	2	2⅙
Sulphate sodium,	none	6⅓
Loss,	¾	. . .
Residue on evaporation,	31	44½
Specific gravity,	1·029	1·0035

In comparing these two analyses, which differ so essentially in quality and quantity of the constituents, it must be remembered that it is possible—though not very probable—that the composition of a mineral spring may become essentially different in the course of half a century. The water on its way through the earth will extract the soluble matter of the rocks or strata it meets, and, after exhausting them, obtain its mineral constituents from other, may be different, rocks it may come in contact with on its subterranean journey. This may explain the difference in our results; one statement, however, is decidedly incorrect in Dr. Church's analysis, namely, the presence of calcium chloride, as, according to the well-established laws of chemistry, calcium chloride cannot exist in an aqueous solution in presence of an excess of sulphate of magnesium. If a solution of calcic chloride is added to magnesium sulphate, the acids will change places, forming gypsum, calcic sulphate and magnesium chloride: $CaCl_2 + MgSO_4 = CaSO_4 + MgCl_2$.

However, it must be borne in mind that in 1825 chemistry, and particularly analytical investigations, had not yet reached so high a degree of perfection as now-a-days, where it ranks among the most exact of the exact sciences. Since gasometric estimations, and even spectrum analysis, have found their way into the laboratory of the "practical chemist," it is quite excusable if an analysis of fifty years ago does not correctly correspond with one made in our days.

II. *The Bedford Sulphur Spring.*—The water of this spring in many respects resembles that of the former one, with the sole exception that it contains sulphhydric acid, or sulphuretted hydrogen, the solid mineral constituents being exactly the same. It is perfectly clear, strongly exhibiting the smell of rotten eggs, and contains besides sulphuretted hydrogen and carbonic acid, gypsum—the chief constituent—sulphate of magnesium, carbonate of calcium, sulphate and chloride of sodium, traces of alumina, and no iron. On standing, it soon loses the odor of sulphuretted hydrogen and deposits a fine white precipitate of sulphur. One liter leaves on evaporation on the water bath 2·6792 grams, which on ignition give 2·0475 grams, equal ·20475 per cent. of saline matter.

As to the medical qualities of these springs, I am indebted to my friend Franklin N. Staub, M. D., for the following notes on this subject:

"The waters of the Bedford Springs have been extensively used for many years and are regarded by many as efficacious in the treatment of a considerable number of chronic diseases, where almost generally the effects of mineral waters are more particularly noticeable. Gout and the different forms of rheumatism, essentially depending, as they do, upon an abnormal composition of the blood, are perhaps the two diseases most benefitted by the use of mineral waters, of course not without some special exceptions. The cure of dyspepsia may also be powerfully assisted by the use of such waters, especially those cases in which constipation and cardialgia are marked symptoms. Much advantage is also derived by dyspeptics by a sojourn, under agreeable circumstances, at a pleasant watering place. Indeed, it is frequently difficult to determine which has exerted the greatest influence, the use of the waters or the change of diet and habits, together with the renewed hopes of improvement and cure. Functional derangements of the liver are sometimes benefitted by the catharsis produced.

"The preceding remarks refer more particularly to the effects of the water of the so-called Bedford Mineral Spring.

"The water of the Bedford Sulphur Spring differs chiefly from that of the mineral spring in containing sulphuretted hydrogen. Its medical properties are, to some extent, identical with those of the mineral spring. Sulphurous waters have been greatly extolled in the treatment of various chronic skin diseases, especially the squamæ (both simple and venerial), the itch, the various forms of eczema, etc. Especially are its effects more marked when accompanied by frequent baths in the water, the temperature of which has been elevated to about 150°F."

Black Diamond Steel Works, Pittsburgh, Dec. 21, 1877.

SOME ANALYSES OF DIALYZED IRON.

By Henry Trimble, Ph.G.

(*Read at Alumni Social Meeting, January* 3, 1878.)

No pharmaceutical preparation of recent times has met with such universal favor as dialyzed iron. The physician employs it with marked success, and the pharmacist refers to it as a type of the so-called elegant remedies to which he has of late years directed a great part of his energy. So far it has chiefly been prepared by a few wholesale manufacturers, who are constantly calling attention to its strength,

purity and general superiority over the other iron compounds. Fearing that the strength of the solution might be sacrificed somewhat in attaining the much-desired elegance, I procured of the leading manufacturers of Philadelphia six samples, and estimated the iron and chlorine by the following process.

About five grams of the solution were taken, diluted with water, treated with ammonic hydrate and heated gently until all the iron was precipitated. This was then filtered off, washed thoroughly, ignited, and weighed as Fe_2O_3. The filtrate and washings were heated to expel excess of ammonia, and treated with hydric and argentic nitrates. The mixture was heated and agitated until the resulting argentic chloride cohered, then filtered and the collected precipitate washed, ignited and weighed as AgCl, from which the percentage of chlorine was calculated.

The following table, containing a summary of the analyses, explains itself:

	Per cent. Fe_2O_3.	Per cent. Cl.	Per cent. of the salt.	Formula.
I.	3·143	·140	3·192	$29Fe_2O_3.Fe_2Cl_6$.
II.	3·442	·154	3·497	$29Fe_2O_3.Fe_2Cl_6$.
III.	2·394	·156	2·514	$19Fe_2O_3.Fe_2Cl_6$.
IV.	2·583	·286	2·804	$11Fe_2O_3.Fe_2Cl_6$.
V.	4·677	·198	4·831	$31Fe_2O_3.Fe_2Cl_6$.
VI.	2·874	·235	3·058	$16Fe_2O_3Fe_2Cl_6$.

There would be no criticism to offer on these results, were it not for the fact that the circulars of these manufacturers state that the solutions contain five per cent. of ferric oxychloride, or, as one asserts, of ferric oxide free from hydric chloride, both of which statements are incorrect, and as yet the latter has proved impossible.

Finally, we see that only the manufacturers are at fault, and that a solution of dialyzed iron can be and is prepared, which, compared with the iron, contains a much smaller proportion of chlorine than has heretofore been supposed, three of the samples showing this, the only objection to them being that they contain too large a percentage of water.

A COMPARATIVE TEST of SOME ANTI-FERMENTS.

By Rich. V. Mattison, Ph.G.

Read at the Alumni Meeting, January 3.

On the 8th day of November last, thirteen new bottles were taken, and in each of them was placed 100 cubic centimeters of a strong infusion of malted barley, the following quantities of anti-ferments added and the bottles placed at a constant temperature of 76°F. To bottle marked *A* nothing was added; to the others as follows:

Schering's Salicylic Acid.			Benzoic Acid from Benzoin.			Calcium Bisulphate.		
B	3	centigrams	*F*	3	centigrams	*J*	3	centigrams
C	6	"	*G*	6	"	*K*	6	"
D	9	"	*H*	9	"	*L*	9	"
E	12	"	*I*	12	"	*M*	12	"

At the expiration of twenty-four hours these solutions were examined with the following result:

A had fermented and tasted quite sour, but at this period no froth or "barm" was to be seen upon the surface of the liquid. The microscope showed the presence of *bacteria* in large numbers and numerous very small cells of the *Saccharomyces Cerevisiæ*. *B*, *C*, *D*, *E*, *H*, *I* and *M* showed only bacteria in slightly varying quantity, but no cells could be observed, and there was no evidence of fermentative change, while in *F* there were numerous small cells observed, with bacteria present, and the liquid was slightly sour to the taste. *G* contained bacteria, was very slightly sour and a few hyaline cells were observed. *J* was quite sour, had large numbers of bacteria and cells, the latter very small. *K*, *L* were very slightly sour, contained few bacteria and very few minute cells.

No "barm" or froth was to be seen upon either of the solutions, and at the expiration of twenty-four hours they were again examined.

A large quantity of froth appeared by this time on the surfaces of *A*, *B*, *C*, *D*, *E*, *J*, *K*, *L*, *M*, they had each deposited a considerable precipitate and were all decidedly sour and in active fermentation. The cells of the *Saccharomyces* were of large size and in countless numbers; these large cells were exceedingly prolific, giving off, by budding, myriads of smaller cells, many of which were arranged in chains like the beads of a necklace, and many of these smaller cells just escaping from the maternal cell, were observed to be throwing out their minute buds—even before they had entirely separated from the parent cell.

The form and appearance of the cells of these solutions, with one exception (*E*) were such as characterized, those of *Saccharomyces Cerevisiæ*, while in *E* the cells more closely resembled those of *Saccharomyces Mycoderma* as did the method of budding also. Still, it could scarcely be this plant as the liquid certainly was in the flood tide of active fermentation. No difference was observed in the appearance of the surface or the sedimentary ferments, excepting in the former the budding seemed more rapid. *F*, *G*, *H*, *I*, upon examination, proved to be all slightly sour; no appearance of froth, however, being seen. Under the microscope were to be seen a few fresh, plump cells, and a few larger withered cells, while these liquids had also grown muddy in appearance from the production of fresh cells.

At the expiration of twenty-four hours the solutions were again examined.

A, *B*, *C*, *D*, *E*, *J*, *K*, *L*, *M* were quite sour; they were covered with froth and rapidly proliferating cells, while bubbles of carbon dioxide could be seen to constantly rise to the surface of the liquid. In *J*, *K*, *L*, *M* the deep brown color had been reduced to a yellowish-white through the action of the dissengaged sulphurous acid from the calcium bisulphite; *F*, *G*, *H*, *I* were scarcely changed. They were rather more sour than at the previous examination and although full of bacteria, there were very few cells to be seen, and those few were very small and shriveled in appearance. Another marked difference between these four solutions containing the benzoic acid is in the fact that no froth is formed on these, while in the others the froth is from one-eighth to one-fourth the depth of the liquids.

In this series of experiments, therefore, the benzoic acid, while not entirely preventing fermentation, had a very much more marked influence in arresting and aborting this change than did either the calcium bisulphite or salicylic acid.

A further experiment is in progress upon solutions of cane sugar in the form of dilute syrups. We have nothing to report excepting that the unprotected sample has developed a large amount of a confervoid growth, the striæ consisting of rods of simple elongated cells, with no appearance of fermentation, while the samples protected by either salicylic or benzoic acid are at the present writing unchanged.

Philadelphia, First mo. 3, 1878.

TINCTURE OF CANTHARIDES.

By Geo. W. Kennedy, Ph.G.

The time is fast approaching for the National Convention for Revising the Pharmacopœia to assemble in the city of Washington, D. C., on the first Wednesday in May, 1880.

By reference to the various pharmaceutical journals, I notice that committees have been appointed from several of the medical and pharmaceutical colleges and associations for the purpose of preparing a list of drugs and chemicals used in their respective localities, and also to furnish the best working formulas for the large number of tinctures, syrups, solid and fluid extracts, and other pharmaceutical preparations in general use.

The time intervening before the assembling of the final committee is but two years, and it is absolutely necessary for the many workers to commence the labor assigned them at once. I observe that many committees have organized, and are pushing their work forward favorably. Judging from the material composing the committees, there is no doubt but their work will be done well and in a systematic order.

It is likewise the duty of all pharmacists, no matter whether serving on committees or otherwise, if they have any suggestions or recommendations to make in the direction of improvement of pharmacopœia processes or formulas, to report the same, either to one of the many committees or through some pharmaceutical journal.

The object of the writer of this article is to recommend a change in the menstruum used in the preparation of tincture of Spanish fly. There is no doubt but all pharmacists are cognizant that diluted alcohol is the menstruum directed to be used by our present Pharmacopœia. I find, after experimenting, that alcohol is preferable to diluted alcohol, for the following reasons:

1st, because diluted alcohol does not dissolve the cantharidin, the active and vesicating principle of the drug, so well as alcohol. The writer, to satisfy his curiosity, collected and preserved the dregs after making several quantities of the tincture as now prepared by the U. S. Pharmacopœia, dried them, and in a percolator submitted them to the action of alcohol until completely exhausted. The alcoholic tincture was evaporated on a water-bath to about the consistence of simple cerate, a small plaster was made and applied, which, in the course of an hour, produced redness of the skin,

and in three hours blistered it, thus proving conclusively and satisfactorily that a change can be made advantageously as recommended.

2d. The tincture as prepared according to the present directions is objectionable, on account of its inelegant appearance and the precipitation which takes place shortly after being prepared; it is decidedly displeasing to the eye, and does not present that beautiful clear greenish-yellow color as when prepared with alcohol. In our days of advancement in elegant pharmaceutical preparations, we should endeavor to manufacture handsome-looking products, so long as the medicinal qualities of the drug are not impaired.

3d. As tincture of cantharides is one of the ingredients of the many hair tonics and dressings which pharmacists are often called upon to prepare, it is also preferable on account of the solubility of the castor oil which frequently enters into preparations of this kind, producing and furnishing to the customer a much handsomer compound.

The German Pharmacopœia directs to prepare the tincture by macerating cantharides, 1 part, with alcohol sp. gr. 0·832, 10 parts, for eight days, and filtering.

SAPO VIRIDIS.

By Herman Betz.

Read at the Alumni Meeting, January 3.

This preparation is used to some extent in Europe, and many pharmacists here are obliged to keep it for their customers, who make use of it in itch and allied affections, for which it is by some considered quite an efficacious remedy.

As found in the market, it is often very impure, being prepared from common animal fats and colored with various substances. Animal fats are not advisable for this purpose, but any vegetable fatty oil, such as oil of hemp or linseed can be very properly used. In countries where oil of hempseed is a common article of commerce, green soap is usually made from this oil, and is obtained of a nice dark-green color.

One reason why green soap in this country is so often adulterated may be found in the scarcity and high price of oil of hempseed. Oil of linseed has the same properties in making a soap for the purpose before mentioned, and on account of its cheapness would not offer so

much temptation for adulteration; it would be advisable to use it altogether, when we would always have a uniform and reliable preparation. As it is now, one can hardly find two samples alike.

In making green soap, one or two points have to be taken in consideration. In the first place the color; this green color is one of the most difficult to obtain from vegetables. I have made a number of experiments, and found none to answer so well as the green coloring matter precipitated from a solution of indigo by lime.

Another point is the disagreeable odor which green soap usually has, but this is easily overcome by a few drops of essential oil, for instance, the oil of citronella.

The following formula may be found useful in preparing this soap:

Take of	Oil of linseed, U. S. P.,	. . .
	Solution of potassa,	. . . āā Oi
	Coloring matter,	. . . q. s.
	Oil of citronella,	. . . gtts. x

Place the oil and potassa in a porcelain dish; mix thoroughly and boil with a regulated heat until the mass becomes thick or stringy; then add the coloring matter and the oil of citronella, with constant stirring.

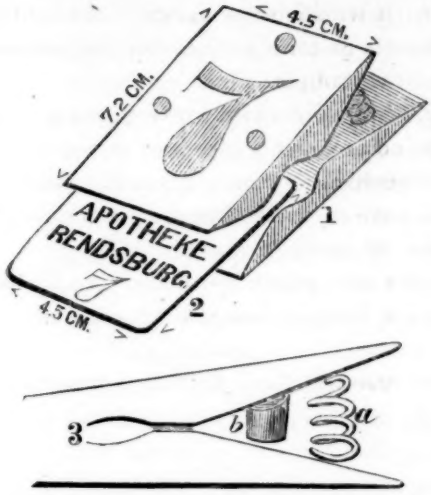
If the oil is perfectly saponified the mass must be homogenous and transparent; opaqueness may be due to want of water, or to an excess of fat, or of solution of potassa. The first and the last can be remedied by a small quantity of water, and if the proportion of oil was too large, an addition of solution of potassa will render the mixture clear.

PRESCRIPTION CLAMPS.

Editor American Journal of Pharmacy:

I have read with interest, in the October number of the JOURNAL, the article by Mr. Andrew Blair on the dispensing of prescriptions. Permit me to communicate to you a contrivance which, about a year ago, I published in the "Pharmaceutische Zeitung," and which, I am pleased to say, seems to have found great favor in Germany, but has been probably overlooked by you.

My little apparatus will be easily understood from the accompanying sketch. These prescription clamps (No. 1) are marked with a large figure and if not in use, contain a check with the same figure and with



the name of the firm, as shown in the cut No. 2. The checks are made of sheet iron, with the figure and firm name engraved thereon. The clamp works by means of two spiral springs, 3*a*, between which is placed a piece of cork, *b*, to prevent too strong a pressure. A person coming with a prescription receives a check, and the prescription is placed in the corresponding clamp. If the medicine is called for, the check is demanded, and in this way mistakes are prevented and much unnecessary questioning of the customer saved, who sometimes declines giving his name. Remarks like "paid," "half the quantity," etc. are written upon the prescription, a corner of which is bent for the purpose.

I have no doubt that this cheap and very useful contrivance (I have 24 such clamps in use) will also find favor in your country, and I should be pleased if you would bring this communication to the notice of your readers. I remain, etc. H. E. SCHELENZ.

Rendsburg, Germany, Nov. 23, 1877.

DISPENSING DANGEROUS COMPOUNDS.

As druggists are occasionally required to compound and dispense chemical compounds of an explosive character, they are usually educated as to their nature, and cautioned as to their manipulation. Notwithstanding this, we occasionally note accidents as occurring from such mixtures, and as the recital of a case may prove a useful lesson, and tend to prevent the repetition of the error, the following instance is mentioned:

A physician sent to a druggist a prescription for nitro muriatic acid and tincture of cardamom. The druggist, after compounding the formula, handed the bottle to the messenger, who was in the act of

placing it in the pocket of his overcoat, when the vial exploded, to the injury of his clothing and to his great alarm. The contents of the bottle being thus lost, the druggist re-compounded the prescription, cautioning the bearer not to shake it. After his recent experience the messenger carried it very cautiously to the patient, who, on removing the wrapper, was met by an explosion that drove the vial cork violently against the eyeball, and scattered the fumes and acid over her face. Prompt surgical assistance fortunately saved the eyesight of the patient, but only after several days' suffering and anxiety.

We are not informed whether the druggist dispensed, as he should have done, nitro-muriatic acid—previously mixed—*after* re-action had taken place, or whether he mixed the acids and bottled them without waiting for the re-action; but we presume, from the imperfect history given, that the latter was the fact, and to recall to others the dangers of such a course we desire to record the case.

Wood, in his "Therapeutics and Pharmacology," says, "care should be taken in opening the bottle to avoid exposing the face to the jet of gaseous vapor which sometimes suddenly escapes, especially when the bottle has been kept in a warm place, and which may endanger the eyes if not guarded,"[1] and we regard the physician, who directs the administration of such a remedy as derelict to his duty when he does not duly caution his patient against such an accident.

X. Y. Z.

GLEANINGS FROM THE FOREIGN JOURNALS.

By the Editor.

The Turpentine Oils.—Dr. Godeffroy gives the following characteristics of the various oils of turpentine met with in the European market:

Austrian oil of turpentine, from Pinus austriaca, transparent, colorless or slightly yellowish, sp. grav. ·864; boiling point, 155—157°C.; turns polarized light to the left.

German oil of turpentine, from Pinus sylvestris, P. abies, P. vulgaris, P. picea and P. rotundata, resembles the former; sp. grav. ·86—·87; boiling point, 155—160°C.; lævogyre.

French oil of turpentine, from the turpentine of Pinus maritima, color-

[1] Wood Therapeutics, vol. i p. 381, 1856.

less or faint yellowish, sp. gr. ·86; boiling point, 156—157°C.; lævogyre; odor peculiar, taste burning. French turpentine is chiefly produced in the neighborhood of Bordeaux, and yields 25 per cent. oil.

Venetian oil of turpentine, from Venice turpentine of Larix decidua, is lævogyre, and resembles the preceding, but has a more agreeable odor. Venice turpentine is mostly obtained in Southern Tyrol and in Piedmont, and yields 18—25 per cent. of oil.

English oil of turpentine, from American turpentine of Pinus palustris and P. Tæda, resembles the French, has the sp. grav. ·864, boils at 156—157, and is dextrogyre. American turpentine yields about 17 per cent. of oil.

Besides these four principal varieties, the following are likewise met with:

Pine cone oil, oleum Abietis pini, is obtained by distilling with water the cones of Abies pectinata. It has a much finer odor than oil of turpentine, spec. grav. ·868; boiling point, 160—162°C., and is dextrogyre.

Dwarf pine oil (Krummholz—or Latschen oil), oleum Pini pumilionis, is obtained by distilling the young tops and cones of Pinus pumilio with water. It has a peculiar odor, reminding of juniper, sp. grav. ·865; boiling point, 170°C., and is lævogyre.

Pine leaf oil is obtained on distilling the leaves of Pinus sylvestris or P. Abies by means of steam. It has a very fine aromatic odor, spec. grav. ·876; boiling point, 160°C., and is dextrogyre.

Templin oil (also Kienöl, Germ.) is obtained chiefly in some sections of Switzerland and Tyrol by distilling the wood, branches, leaves, cones, etc., with water. It has a lemon-like odor, spec. grav. ·86—·88; boiling point, 160—164°C., and is lævogyre.—*Phar. Zeitung*, 1877, No. 81—*Zeitschr. Oest. Apoth. Ver.*

New Method of Extracting Scammony Resin. Emile Perret.—The author exhausts the crude pulverized scammony with boiling alcohol, and neutralizes the dark alkaline liquid with a few drops of sulphuric acid. The coloring matters are precipitated as a lake, and the clear supernatant liquid is filtered off; the alcohol is distilled off, and the residual pure resin is dried on the sand-bath, raising the temperature gradually to 104°.—*Chem. News* [Lond.], Dec. 21, 1877.

Process for Extracting Quinidia from the Quinoidin of Com-

merce. Dr. J. E. de Vry.—The hydrochloric solution of quinoidin is heated in the water-bath, and mixed with a solution of caustic soda (containing 40 grms. hydrate of soda per liter) to remove a black resinous matter. From the solution remaining the quinidia is separated, either by means of tartaric acid, or of potassium iodide. The author remarks that all the neutral salts of the cinchona alkaloids have an alkaline reaction.—*Ibid.*

Sanguinaire or thé arabe.—John R. Jackson has examined this tea, which is put up in Algeria, and is recommended in colds, catarrhs and chest affections; likewise as being useful in alleviating fevers, and in contributing to the enrichment of the blood. It was found to consist of the flower-heads and large silvery bracts of Paronychia argentea and nivea. The infusion had scarcely any color, very little smell, and reminded rather of boiled hay.—*Phar. Jour. and Trans.*, Jan. 5, 1878.

Fraudulent Quinia.—Dr. Pratesi reports on a chemical product, said to be of German origin, and offered as adapted for the fraudulent substitution of quinia. It resembles quinia sulphate in appearance and in the behavior to alcohol, ether, chloroform and ammonia, but is freely soluble in water, not precipitated by barium chloride, not persistently bitter, and when heated upon platinum foil burns, giving off violet vapors.—*Pharm. Zeitung*, Dec. 5, from *Ann. di Chimica.*

Detection of Small Quantities of Morphia.—The suspected substance is dissolved in concentrated muriatic acid, to which a small quantity of pure sulphuric acid is added, and the solution evaporated at 100° to 120°C. A purple coloration is observed, even in the presence of substances which are readily carbonized. After the evaporation of the hydrochloric acid, a fresh portion of it is added, and then some sodium bicarbonate, when a violet coloration is produced which is unalterable in contact with the air and yields nothing to ether. On the addition of a few drops of a concentrated solution of iodine in hydriodic acid, the violet color passes into green, and the compound is soluble in ether with a purple color. This reaction is due to the formation of apomorphia. Codeia gives the same reaction, but can be separated from the morphia by ether.

Brucia treated in the same manner gives, on neutralization with the sodium salt, a blue coloration, passing into red on the addition of iodine; but this reaction is not very delicate.—G. Pellagri, in *Ber. d. deutsch. Chem. Ges.*, from *Phar. Cent. Halle*, 1877, No. 47.

Bitter Almonds.—The physiological investigations of Portes lead to the following results: 1. The developing bitter almonds contain amygdalin. 2. Their composition always differs from that of sweet almonds. 3. The embryo contains the emulsin. 4. The amygdalin, whose origin is still unknown, appears first in the integuments of the seeds; and 5, passes gradually through the radicle into the cotyledons. —*Compt. Rend.*, lxxxv, 81.

The Volatile Acids of Croton Oil.—Besides stearic, palmitic, lauric and myristic acids, Schlippe had proven the presence of oleic, crotonic and angelicic acids, and Geuther and Fröhlich had observed in the mother-liquor of croton oil soap the presence of acetic, butyric, valerianic and tiglinic acids, regarding the latter as being probably identical with the methylcrotonic acid of Frankland and Duppa. This identity has now been proven by E. Schmidt and J. Berendes.—*Phar. Cent. Halle*, 1877, No. 38.

Copper in Olive Oil.—To detect copper in artificially colored olive oil, C. Cailletet advises to agitate 10 cc. of the oil with a solution of 0·1 pyrogallic acid in 5 cc. of ether. The presence of copper is indicated by a brown coloration.—*Ibid.*, No. 46.

Calomel in Corrosive Sublimate.—Mich. Schlesinger has repeatedly observed that commercial corrosive sublimate would not completely dissolve in water, but left a residue of calomel, which in one case amounted to ·54 per cent.—*Phar. Cent. Halle*, 1877, No. 43.

[We have not unfrequently met with the same impurity in the corrosive sublimate of our commerce.—EDITOR.]

Solid Sulphuric Acid.—The chemical works of Stark, in Bohemia, have brought into the market the anhydrid of sulphuric acid, which is put up in soldered boxes of tinned sheet-iron. At the ordinary temperature, and when moisture is totally excluded, anhydrous sulphuric acid does not act upon metals, and, more particularly, upon zinc. In this condition the acid is particularly useful for the preparation of alizarin. —*Ibid.*, No. 45.

Arsenical Capping Paper.—J. B. Barnes directs attention to a magenta colored capping paper, which contains notable quantities of arsenic, and the color of which has evidently been prepared by oxidiz-

ing anilin by means of arsenic acid. The bare suspicion of extraneous arsenic finding its way into *medicine* must be sufficient to insure its instant abandonment by those who have not already suspected that the paper contains arsenic.—*Phar. Jour. and Trans.*, Oct. 27.

Syrupus Ferri Phosphatis cum Quinia et Strychnia.—After reviewing the literature on this preparation, and noticing the defects of the different formulas proposed for its preparation, Geo. Masson proposes the following, by which a colorless syrup may be readily obtained, of full strength and good keeping qualities.[1]

The syrup should be preserved from the air in bottles, well-filled and securely stoppered:

℞	Strychniæ,	24 grs.	
	Quiniæ sulph.,	860 grs.	
	Ferri sulph.,	4 ozs. 40 grs.	Avoirdupois.
	Sodæ phosph.,	12 ozs.	
	Sacchari purif. contus.,	60 ozs.	
	Acid. phosph. dil.,	48 ozs.	

Dissolve the quiniæ sulph. in aq. dest., with a sufficiency of acid. sulph. dil., precipitate with liq. ammon. q. s., collect on a filter, wash carefully, avoiding the use of too much water, and add to the acid. phosph. dil. in which the strychnia has been previously dissolved. Dissolve the ferri sulph. in Oii, and the sodæ phosph. in Ov of recently-boiled distilled water, filter the iron solution if necessary to remove any oxidation, allow the solutions to cool to 130°F., and then add very gradually, with constant stirring, the solution of soda to the iron; allow the precipitate to subside, remove the supernatant fluid and wash the ferrous phosphate by decantation with recently-boiled distilled water, then transfer to a calico filter, express quickly the remaining liquid, and dissolve in the dilute phosphoric acid. Finally, add the sugar, dissolve without heat, and subsequently add a sufficiency of distilled water to make the product measure 96 fluidounces, each fluidrachm of which will contain 1 grain phosphate of iron, 1 grain phosphate of quinia, and one thirty-secondth grain of strychnia.—*Phar. Jour. and Trans.*, Dec. 22.

[1] Weights and measures of the British Pharmacopœia.—EDITOR.

PILLS AND PILL COATINGS.

By Charles Symes, Ph.D.

Read before the Liverpool Chemists' Association, November 22, 1877.

The pilular form of medicine is one which has received considerable attention at the hands of pharmacists, and so much has already been written and said concerning it that a difficulty presents itself to me in bringing the subject forward to offer much that is really original; I can, however, give some of the results of my experience, record and estimate certain known facts as they appear to me of more or less value, and thus submit my views of the matter which might not be uninteresting, inasmuch as we know by daily experience that just as the same ray of light falling on different bodies is either absorbed, transmitted or reflected, and these in different degrees, so the same phenomenon impinging on different minds is differently received and produces a different impression, or, as we commonly say, is seen from different points of view.

The pill is a concentrated and portable form of medicine and often contains ingredients which would be exceedingly nauseous if taken in a liquid state; it requires no measuring out of dose and is thus exceedingly convenient; we cannot, therefore, be surprised that it has become very popular, and that the skill of the pharmacist has been taxed to its utmost to bring into this form a large variety of substances, to enhance its keeping qualities by every conceivable means, and to cover it in a manner which at once renders it both elegant and tasteless. The first operation in the production of pills is of course that of weighing out the ingredients. I mention this because I fear it is not always as carefully done as it might be; often the same balances are used to weigh one grain and one hundred. Now as the knife edges will necessarily become somewhat blunted by these heavier weights, their delicacy will become impaired and they will thus be rendered unsuitable for weighing small quantities of active substances. For these I prefer the German balances with graduated beam and sliding weight or rider, capable of weighing from one-tenth to five or ten grains *and not more;* then for larger quantities or less potent substances the ordinary dispensing balance weighing from a few grains to one hundred; and for anything above this quantity a small well made pair of counter scales should be used. These latter will of course only be required when the patient wants a large supply, or for the manufacture of stock pills.

Sometimes the ingredients of a formula will, when mixed, themselves form a mass suitable for dividing into pills; but usually an excipient has to be added, and the proper selection of a suitable one constitutes the chief art in pill making. The list of excipients is somewhat lengthy in detail, but they may be summarized as follows: Glycerin of tragacanth, glycerin, treacle, syrup, mucilage, tinctures, spirit, water, confections, extracts; powders of tragacanth, gum arabic, taraxacum root, bees'-wax, almond meal, soap, bread crumb, etc. Mr. Martindale has recommended a mixture of starch and glycerin, and Mr. Walter Searle a solution of soluble cream of tartar and citrate of potassa, to which is added syrup and mucilage. Whatever be the ingredients or the excipients, it should be borne in mind that to attain satisfactory results a pill must resemble a building and contain constituents possessing the physical characteristics of both bricks and mortar; these too, if possible, in such proportions as to produce a substantial structure.

Of the soft or plastic excipients in the foregoing list, glycerin of tragacanth is probably the most generally useful, as by means of it in small quantity we are enabled to get sufficient adhesiveness to bring solid particles, themselves devoid of that property, into a compact mass, and cause them to cohere firmly together without imparting undue hardness or insolubility. Metallic oxides and salts are by it rendered most tractable, and a pill which would otherwise be very large is by it rendered quite within the average size. I produce samples of pills containing five grains bromide of potassium, and ten grains of subnitrate of bismuth respectively, neither of which are larger then a five grain colocynth pill. Glycerin itself, except in very small quantity, is not a good excipient though frequently prescribed; pills containing it are liable to absorb moisture and become sticky; they also do not take silver well when required so to do. Pills prepared with mucilage are liable to become very hard when kept for any length of time; with spirit they require to be rolled off quickly or will become brittle and crumble on the machine. Spirit should never be used when there is much resin in the pill, indeed with this, as with the other liquid excipients named, most pharmacists will have ascertained the special cases to which they are best adapted as the result of experience. Of the extracts that of liquorice is about the most useful, as it possesses no active medicinal properties; confection of roses and that of hips usually

tend to increase the bulk of the mass rather more than is desirable, otherwise they possess good combining properties. It not unfrequently happens that the ingredients of a prescription, instead of requiring moisture, have in themselves too little solidity to form or retain the pilular consistence; we have, as it were, all mortar and no bricks wherewith to build. In such cases Mr. Proctor strongly recommends the addition of powdered wood; he compares a pill to an animal, and says this substance is real bone to it, which, doubtless is the case; but in the face of the satire on the apothecary and his sawdust pills, I have never been able to reconcile my mind to its use.

If the mass require but a small addition in the way of solidity and some elasticity, then a little powdered tragacanth answers admirably, but if the quantity be too great then the elasticity is also excessive and it becomes somewhat difficult to round off the angles under the pill finisher. If the mass is much too soft, and consists chiefly of moist extracts, the first thing to be done is to dispel some of the moisture by the judicious application of heat (for this purpose a very small hot-water plate is an acquisition to the dispensing counter), a little of some powder, such as tragacanth, gum arabic, liquorice root, or taraxacum might then be worked in, and the mass be rolled out quickly before it has thoroughly cooled. If the extract possess a hygroscopic nature, such as that of dandelion, then tragacanth, which tends to dryness, answers well. But what I believe to be still better in the case of extracts which are not injured by drying is to use them in powder.

Pills containing much essential oil are best manipulated by the addition of a few shreds of wax and a little powdered soap where not incompatible; this combination enables the operator to get in more oil, carbolic acid, creasote, etc., in a satisfactory manner than any other means I am acquainted with. Almond meal has also been recommended for causing oily and watery substances to unite; it does so by its emulsifying properties and would be very valuable but, unfortunately, it gives an insoluble character to the pill and thus impairs its activity. An excipient formerly much prescribed, but about the worst I know of, is crumb of bread.

Some substances require special excipients. I will only mention two of these—sulphate of quinia might be made into pills with confection of hips; better, because smaller, with glycerin of tragacanth; but, best and smallest with tartaric acid (about two grains to twenty) and a

single drop of water. Camphor and extract of henbane usually form a very refactory mass, breaking and crumbling on the machine; if, however, the camphor is powdered by the addition of a little *water* instead of *spirit*, all difficulty disappears, the mass retains its plastic condition for some time, and might be rolled out with perfect ease.

Whatever means are used for the formation of pills, they should, when finished, be perfectly spherical and present a smooth, firm surface; this is essential, not only for the sake of appearance, but for the proper performance of the second operation, viz., that of coating them.

Reading a short extract from the "United States Dispensatory," of 1833, will prove that even America, which has gone ahead so rapidly in pill coating as in most other things, contemplated nothing of the kind in those days. The method of covering pills with powders as there described was that which obtained in this country during my early initiation into the art and science of pharmacy some twenty years or more ago; indeed, it is still practised in many, if not most pharmacies in the present day, a little of the powder also being placed in the box to keep the pills at a respectful distance from each other. The first improvement on this with which I became acquainted was that adopted by myself in 1860; possibly the same or similar methods might have been in use at the same time by others, but as far as myself was concerned, it was original (at least as original as ideas ever are), and very simple too. It consisted in utilizing a waste product, viz., the resin left after preparing syrup of tolu; this, dissolved in ether, preferably with a sp. gr. of ·717 or ·720, formed a varnish in which the pills were rolled and whilst still moist were transferred to a box containing finely powdered French chalk, then turned on to a warm pill tray and kept rotating for a short time; finally they were polished *with slight* pressure under the pill finisher. Pills so prepared possess a steel grey appearance and smooth surface, though not the egg-shell white character now given them; but this method of procedure or some modification of it is the first part of the process adopted for accomplishing the latter.

The pills are now placed in a covered pot as at first, and are moistened with syrup, mucilage or a mixture of the two; when evenly covered they are transferred to a box containing French chalk, or a mixture of it and finely powdered sugar, well shaken and again transferred to a warm pill tray, kept rapidly rotating until dry and smooth; the operation taking but a comparatively short time. Well covered in

this way they will keep good for years. I have a specimen of some pills thus coated more than four years since; on cutting them open they will be found less hard then they would have become in as many weeks if left exposed as these have been and uncoated.

There is a drawback to this covering in the case of pills containing essential oils; the oil dissolves some of the coloring matter of the pill, and takes it through the coating which then becomes yellow or brown and unsightly. Manufacturers of these pills on the large scale usually get over this difficulty by substituting gingerine for any essential oil in the formula, but such a procedure is inadmissible in dispensing.

Under these circumstances the covering recommended by M. Calloud ("Journal de Pharmacie," xxiii, 310) might be used with advantage; it consists of a powder prepared as follows:

One part of powdered tragacanth mixed with two of water is pressed through muslin; this is then mixed with twenty parts powdered sugar of milk and spread on a procelain slab in a thin layer to dry; lastly, it is reduced to a fine powder. This is not easily accomplished, but I have found by experience that the excellence of this coating largely depends on the fineness of the powder. The pills are merely moistened with water and rolled in the powder, keeping up a rotary motion till dry, and repeating the operation if necessary.

Pills of this kind also do well with gelatin coating, one of the oldest methods, and one which is now seldom used in this country, but the Americans still adopt it to some extent, and one house in New York advertises somewhat extensively a full line of gelatin-coated pills. The process is exceedingly simple, but like all others requires some amount of practice and dexterity for its successful accomplishment. The only necessary apparatus consists of a pin board, *i. e.*, a piece of wood into which pins have been pressed, so as to allow the points to project a good distance above the surface, and a small vessel of melted gelatin. I generally use the French sheet gelatin—say four parts, water sixteen, glycerin one. The points of the pins should be slightly greased before placing the pills on them, and any scum or skin should be removed from the solution before dipping them; when removed a rotary motion with occasional inversion is kept up till the gelatin has set, they are then put aside to dry. In the "Pharmacist" (March, 1877) Mr. Charles B. Allaire describes an ingenious little apparatus, which can be readily constructed for coating pills with

gelatin. A second piece of wood, the same size as the pin board, is so hollowed out in small hemispherical depressions as that one pill in each hollow corresponds with each pin in the pin board; this is for the convenience of picking up a quantity at once. When dry, the whole are removed at once by a kind of comb with long teeth made to slide between the pins.

According to the tabulated results of a number of experiments by Mr. J. P. Remington ("Amer. Journ. Pharm.") gelatin coating is not readily soluble, but the solvent used was only water, and even so could not apply to the coating containing glycerin. By a similar means Hawker's patent jujubes are covered, and I have never heard a customer complain of any difficulty in removing the coating; it appears to be readily soluble in the mouth.

Mr. E. K. Durden proposes (in the journal just quoted) to cover pills with collodion having a sp. gr. ·810; two dippings in this are said to give an elegant appearance; it is readily put on and completely conceals the taste of the medicine. Valerianate of zinc pills so coated, which is about as severe a test as we can apply, stands it moderately well. It remains, however, to be proved how far this coating is soluble in the stomach.

We now come to sugar coating. This process is conducted by manufacturers, especially in America, on an extensive scale, and seems daily to be gaining favor from the profession, the pharmacist, and the public. It possesses the advantages of a pleasant taste and ready solubility, and whilst there might be some doubt on the part of the patient as to the prudence of frequently swallowing pearl coating there certainly could be none on the part of the most fastidious as to taking a small quantity of sugar. This coating varies somewhat, however, and the purest sugar is not always used to produce the whitest coating; still it might be done without any admixture.

Numerous inquiries have been made of late as to the exact process to be adopted for satisfactorily accomplishing this object, the usual reply being, "Follow the practice of the confectioner in the production of his comfits," about which I may add there is but one secret. The process is simply this: pills well dried on the surface are introduced into a tinned copper bowl with a flat bottom, or enameled iron dish, the surface of which has been moistened with syrup or with syrup and gum; they are then rotated and gently heated, very finely powdered sugar is dusted on,

and the motion kept up until a perfectly dry, hard and whitish coating is obtained, the operation being repeated till the desired result is accomplished—which with the pharmacist in his first attempt *is usually not the case*.

But now for the secret. We have followed the method of the confectioner in its outline; but what about his skill and experience? These are just the things wanting; the confectioner would be a very clumsy hand at producing the pill, the pharmacist is usually equally so at sugar-coating it; the confectioner could be educated to make the pill and the pharmacist to coat it with sugar if he would only apply his ability, gain experience by perseverance, and keep up by practice his acquired knowledge. A gentleman writing to the "Pharmaceutical Journal" a short time since, complained of what he considered to be want of courtesy on the part of certain Americans respecting a little apparatus for sugar-coating small quantities of pills. The truth is, I believe, that the said apparatus is to be found in every pharmacy; it is simply the knowledge of how to use it that is not.[1]

Lastly, we have silvering as an elegant coating readily applied. It is mentioned in the old "United States Dispensatory" as a thing of the past, but is frequently used in the present day. I need say little or nothing about its application. Avoid the use of glycerin as an excipient in the pill, put as little moisture on the surface as will enable the silver to adhere, and burnish by rotating in a covered pot containing a little cotton wool to remove any loosely attached fragments of silver leaf.—*Pharm. Jour. and Trans.*, Dec. 15, 1877.

NOTE ON THE "SAPONIN" OF SARSAPARILLA.

By Professor Flückiger.[2]

Galileo Pallotta was the first chemist who attempted the separation of an active principle from sarsaparilla. His work appears to have been done early in the present century, shortly after the discovery of the first alkaloids. By treating the aqueous extract of the root with milk of lime, drying the precipitate, and boiling the alcohol, he obtained a substance that he claimed to be an alkaloid and named

[1] In the "Amer. Jour. Pharm.," May, 1867, there is an article by Mr. H. C. Archibald, on "Sugar Coated Pills."

[2] Abstract of article in the "Archiv der Pharmacie," 3d series, vol. vii, p. 532.

"pariglina," or "parillina"; it is difficult, however, from Pallotta's meagre description[1] to form an idea of the properties of this body. According to a note in the "Pharmaceutische Zeitung," of the 2d of May last, Dr. Pallotta, who is a Professor of Natural Science at Naples, is still of opinion that in his pariglina he discovered an alkaloid. Whether or not it was a more or less pure form of the constituent of sarsaparilla hereafter referred to, Professor Flückiger considers that Pallotta's name, parillin, should be retained for the special crystallizable body found in that root. Subsequent investigators called this body "smilacin," by which name it has gradually become generally known. That both alkaline and acid properties should have been attributed to this substance by various authors was due, probably to the presence of impurities, which, however, are easily removed by recrystallization. Parillin is decidedly a neutral body. Strangely, it is occasionally confused with a body yet uninvestigated, probably a stearoptene, said to occur in the root of *Hemidesmus indicus*, R. B., which has been called Indian sarsaparilla, although it does not resemble the *Smilax* root.

In 1859, O. Gmelin stated that parillin is decomposed by acids into sugar and a substance insoluble in water, a statement that has been questioned by others. Some experiments carried out in the author's laboratory by Klunge also pointed to the glucoside nature of parillin; but doubt was not altogether dispelled, because the unaltered parillin itself reduces alkaline cupric tartrate, though very slightly. For these reasons Professor Flückiger considered an examination of parillin desirable, in order at least to ascertain whether it was a glucoside. Meanwhile, this point was decided last year by Otten,[2] who, however, looks

[1] "Journal de Pharmacie," x, 543.

[2] "Vergleichende histiologische Untersuchung der Sarsaparillen aus der pharmacognostischen Sammlung des pharmaceutischen Instituts zu Dorpat, nebst einem Beitrage zur chemischen Kentniss dieser Drogue." Dorpat, 1876. In the latter part of this exhaustive treatise, which is too long for insertion entire in this journal, and unsuited for abstraction, Herr Otten identifies a second substance present in sarsaparilla with saponin, and from his experiments arrives at the conclusion that parillin has an action similar to, but not so strong as that of saponin, and that it is sapogenin *plus* sugar. Dragendorff has already pointed out that saponin and senegin affect the heart's action more energetically when impure than pure, and Otten suggests that the action of these allied bodies, as well as of parillin, is dependent upon another body always occurring together with them.—Ed. Pharm. Journ.

to Professor Flückiger to carry on the investigation. Professor Flückiger suggests that, in order to facilitate a comparison of the nearly allied, if not identical, substances, saponin and parillin, a more exact investigation of the former, prepared from cheaper materials, should be undertaken by others, he himself dealing with the sarsaparilla "saponin" or parillin.

The following method of preparation is recommended as preferable to that given in "Pharmacographia." The chopped and bruised sarsaparilla root is heated at least twice with alcohol of about 0·835 sp. gr., the liquid poured off and the marc pressed, and the product distilled until the residue in the retort equals one sixth, or rather less, of the weight of root used. The liquid, which is strongly colored, but not particularly thick, is diluted gradually with one and a half times its weight of water, which causes the formation ot a light yellowish loamy precipitate of crude parillin. The liquor is allowed to stand some days in the cold, after which the very dark brown clear liquor can be decanted off. With the deposit is then mixed about half its volume of alcohol, the mixture is filtered, and the precipitate washed with very dilute spirit, containing about twenty to thirty per cent. by weight of alcohol. This operation depends upon parillin being less soluble in dilute spirit than in ordinary alcohol or in water, it being precipitated from an alcoholic solution by the addition of water, or from an aqueous solution by the addition of spirit. In alcohol of sp. gr. 0·835 it is freely soluble. Although freely soluble in boiling water, and very slightly soluble in cold water, it crystallizes best from alcohol. Prepared in this way, after treatment with animal charcoal, the parillin is obtained pure white, either in thin scales or prisms, showing a double refraction in polarized light.

In several experiments with different kinds of sarsaparilla, working with about 4 kilograms of root, the author obtained about 0·18 to 0·19 per cent. of pure white crystallized parillin. Some more parillin can be obtained by concentrating the mother-liquor and precipitating with a little water, or boiling it with alcohol. This second yield, however, is less readily purified, it becoming mixed with sodium chloride, which occurs plentifully in all aqueous extracts of sarsaparilla. The author failed to obtain parillin from the root stock of *Smilax aspera* or from China root, but the quantity operated on was small. Marquis reports ("Archiv d. Pharm.," ccvi, 342) that he obtained 1·75 per cent. from sarsaparilla, 5·12 per cent. from *Smilax aspera*, and over 0·60 per cent. from China root.

Air-dried parillin contains water of crystallization, which it loses at 100°C.; but different experiments gave results varying from 6 to 12 per cent. At about 140° it cakes together, melts with partial decomposition at about 210°, and acquires a strong brown color by further heating. Melted parillin readily takes fire, and burns quietly after the

removal of the flame, but it is difficult to effect a perfect combustion of the light charcoal at first produced. Pure crystallized parillin is almost insoluble (about 1 in 10,000) in cold water, but a solution prepared with boiling water remains supersaturated after it has become cold. It dissolves at 25°C. in 25 parts of alcohol, sp. gr. 0·814, and much more freely in boiling alcohol, crystals separating from the latter on cooling. Parillin dissolves in warm chloroform to a thin liquid which cannot be filtered, and yields upon evaporation no crystals, but only an amorphous varnish, which, however, can be recrystallized from hot alcohol.

Parillin does not seem to be provocative of sneezing, like saponin from quillaia, cyclamen and other sources is. Solid parillin has not an acrid taste; an alcoholic solution has more acridity than an aqueous solution, but incomparably less than saponin solution. No effects were observed to follow the use of such solutions of parillin. Parillin in alcoholic solution has no rotatory action and does not color litmus paper.

Parillin gives with strong sulphuric acid a pure yellow solution that becomes of a beautiful cherry-red at the edges, due to dehydration. With dilute sulphuric acid (10 per cent.) it becomes greenish when heated; kept in a water-bath it gradually becomes a beautiful red and finally brown. Phosphoric acid acts similarly, but gives more of a yellow-green color. The addition of nitric acid, nitrates or bromine to the sulphuric acid solution produces no special color.

An aqueous solution of parillin gives with an alcoholic, but not with an aqueous solution of acetate of lead, a precipitate again soluble in excess of the lead salt or of alcohol. No precipitate is produced by subacetate of lead or tannic acid. In the cold a solution of parillin does not reduce alkaline cupric tartrate, but at 80° or 90° a separation of cuprous oxide takes place in a few hours. But it produces no separation of metallic bismuth from a solution of bismuth tartrate in caustic alkali even after prolonged heating in a water bath. Boiled with dilute sulphuric or hydrochloric acid, and the filtrate neutralized, it freely reduces cupric tartrate in the cold after a short time, and with the least warmth immediately. It is, therefore, evident that parillin is a glucoside.

The parigenin produced by the decomposition of parillin with dilute mineral acids is perfectly insoluble in boiling water, so that it can be readily separated and washed. It is probable that the sugar separated is at least partially crystallizable.

During the decomposition of the parillin by dilute mineral acids the liquid acquires a strong green fluorescence. The fluorescence is still more marked when parillin in solution in chloroform containing alcohol is decomposed with dry hydrochloric acid gas. This liquid is at first colorless, and does not develop heat, but suddenly becomes brown by transmitted light and full green by reflected light. Upon the addition

of water, or evaporation of the alcohol and chloroform, white flocks of parigenin are formed whilst sugar remains in the solution. As in similar cases the fluorescence of parillin is very persistent. An unweighable quantity heated with a few drops of strong sulphuric acid in a water-bath gives a liquid that can be diluted with 100 cc. of acid without losing its fluorescence, but dilution with water causes its immediate disappearance. After saturation with ammonia the liquid does not again show the green shade. In this behavior and the color parillin gives with a little sulphuric acid in the cold lie the best means at present known for its detection. It is noticeable that the "saponin" of digitalis, to be presently mentioned, Schmiedeberg's digitonin, also gives this fluorescence, but not cyclamin. Three analyses of parillin (smilacin) given in Gmelin on the authority of Henry, Peterson and Poggiale, agree fairly well with the figures obtained by Klunge in two analyses. But Professor Flückiger believes that these specimens were contaminated with parigenin. Parillin dissolved in warm water, which does not take up parigenin, filtered, and reprecipitated by alcohol, gave between 2 and 3 per cent. less corbon, or as a mean of three analyses, C=60·4; H=9. Three other analyses of another sample gave the following figures, showing still less carbon:

C . . .	57·66	56·80	56·4
H . .	——	8·27	8·3

These figures appear to show a remarkable relation between parillin and the saponin prepared by Rochleder, Schwarz and von Payr from the "soap-root" erroneously attributed to *Gypsophila Struthium*, which had the formula $C_{64}H_{106}O_{36}$. If this formula be written $C_{32}H_{53}O_{18}$, the next lower in a homologous series of "saponins" would have the formula $C_{31}H_{51}O_{18}$. Possibly this is the place of the "saponin" found by Schmiedeberg in commercial digitalin, and named "digitonin"; he, however, attributed to it the formula $C_{31}H_{52}O_{17}$. Should there really be a homologous series of "saponins," the eighth step upwards from Rochleder's saponin would be the compound $C_{32}H_{53}O_{18}+8CH_2=C_{40}H_{69}O_{18}$. This would require 57·3 per cent. of carbon, and 8·2 per cent. of hydrogen, figures not irreconcilable with those obtained in the last three analyses of parillin, whilst the mean of the previous three analyses would agree with the formula of a saponin $C_{32}H_{53}O_{18}+16CH_2=C_{48}H_{85}O_{18}$, which would require 60·7 per cent. of carbon and 9 per cent. of hydrogen. Subsequently, however, Rochleder has published the formula $C_{32}H_{54}O_{18}$ for his saponin, which agrees better with the results of its decomposition, and also pretty closely with the saponin prepared by Christophsohn from Levant soap root, quillaia bark, *Saponaria officinalis* and *Agrostemma* seeds, which he believes to be identical as obtained from all four sources. As, however, this would only slightly alter the hydrogen, it is not inconsistent with the homologous nature of the "saponins." From these and other considerations it appears probable that there exists a series of saponins with the general formula $C_n H_{2n-10} O_{18}$.

Sapogenin and parigenin produced, with sugar, when saponin and parillin are split up under the influence of acids, are closely allied, as is also cyclamiretin resulting from the decomposition of cyclamin, and possibly they are also homologous.—*Pharm. Jour. and Trans.* [Lond.], Dec. 23, 1877.

TEST FOR SANTONIN.

By David Lindo.

Place the santonin in a small deep porcelain dish, and dissolve it (without heat) in concentrated sulphuric acid; rubbing the crystals down with a glass rod greatly facilitates solution. Add highly dilute solution of ferric chloride in small quantities at a time, and between each addition give the dish a pretty quick rotatory motion while it is supported on a table. A fine red color is first developed, which changes to a magnificent purple, and then to a splendid violet as the sulphuric acid becomes more dilute. The heat produced by mixing the fluids is necessary to develop the colors.

When applying the test to small quantities of santonin, a somewhat different method of proceeding must be adopted. The experiment in this case is best performed in a one-inch shallow porcelain capsule, with a thick, flat bottom. Mix the highly dilute solution of perchloride of iron with an equal bulk of concentrated sulphuric acid, and add the mixture to the santonin. Heat must then be cautiously applied. The crystals of santonin will slowly dissolve, and the color will be developed.

The capsule is conveniently supported on the blade of a spatula, and heated by a spirit lamp.

One drop of a solution of 1 grain of santonin in 1 fluidounce of chloroform was evaporated to dryness in a small capsule, and the residue heated with a drop of the perchloride of iron and sulphuric acid mixture. A very fine reaction was obtained.

The separation of santonin, however, from other organic matters would, in most cases, be very difficult, and, in many instances, an impossible thing to accomplish, owing to the facility with which it suffers decomposition.

In trying the experiment of separating santonin, by means of chloroform, from a powder containing rhubarb and santonin, I noticed a thing which I have not seen mentioned before. The chloroform separated from the powder by filtration was evaporated to dryness, and the residue tested for santonin. The violet color was obtained very distinctly. I then tried the effect of the test fluid on the coloring matter of rhubarb alone, as I noticed this is dissolved by chloroform. The test produced a reddish color, not the violet or purple color of santonin.

Thinking that in the case of rhubarb the iron had nothing to do with the reaction, I next tried the effect of *concentrated sulphuric acid alone* on the coloring matter of rhubarb. I found it produced a beautiful

scarlet color: this is much the same effect (as is very well known) produced by alkalies on the coloring matter; and when the latter has been turned red by an alkali an acid restores it to yellow.—*Chem. News*, Nov. 16.

Falmouth, Jamaica, Oct. 6, 1877.

MINUTES OF THE COLLEGE.

PHILADELPHIA, Twelfth month 31st, 1877.

A Stated Meeting of the Philadelphia College of Pharmacy was held this day at the Hall of the College, No. 145 North Tenth street.

Dillwyn Parrish, President, in the chair; eighteen members in attendance.

The minutes of the meeting in September last were read and on motion approved.

The minutes of the Board of Trustees for the last three months were read by the Secretary of the Board, and on motion adopted.

These minutes show that the Board has appointed Thomas S. Wiegand Actuary of the College, who will be in attendance daily during the Lectures from 3 to 5 and from 6 to 10 o'clock P. M., to discharge the duties of Librarian, Curator, etc.

A report of a committee appointed by the Board to adopt a By-Law specifying the duties of the Actuary, and which had been referred to the College for its action, was read and laid over under the rules for consideration at the meeting in March next.

William C. Bakes, Secretary of the Pharmacopœia Committee, stated that the committee had entered upon their duties and that they had met jointly with similar committees of the Philadelphia County Medical Society, and the College of Physicians of Philadelphia; that work had been laid out and arranged for the sub-committees, and would be attended to in due season.

Then adjourned. WILLIAM J. JENKS, *Secretary*.

MINUTES OF THE PHARMACEUTICAL MEETING.

PHILADELPHIA, January 15, 1878.

The fourth pharmaceutical meeting of the series wss held this day at the College hall, President Dillwyn Parrish calling the meeting to order. The minutes of the last meeting were read and approved.

Mr. A. P. Brown presented a copy of the Proceedings of the New Jersey Pharmaceutical Association, and Prof. J. M. Maisch, on behalf of the American Pharmaceutical Association, presented a copy of the Twenty-fifth Annual Report of their Proceedings, also the Year-Book of Pharmacy, from the British Pharmaceutical Conference.

On motion, the Registrar was directed to return thanks for said donations to the different bodies and preserve the volumes in the library.

Professor Maisch called the attention of the meeting to the black root of Georgia (Pterocaulon pycnostachyum, *Ell.*), James' tea (Ledum latifolium, *Lin.*), the rheumatism root of Virginia (Dioscorea villosa, *Lin.*), the black haw of Florida (Viburnum obovatum, *Walt.*), specimens of which plants and drugs were exhibited to illustrate two papers read by him, entitled "Notes on a Few American Drugs" (see

page 53) and "The Useful Species of Viburnum" (see page 53); the papers were referred to the Publication Committee.

Mr. E. M. Boring exhibited a plant used by an empiric in the cure of cancer; it was recognized by Professor Maisch as Ceanothus Americanus, *Lin.*, and is called American tea, New Jersey tea, or red root, because that is the color ot the root. It was made use of largely during the American Revolution, by our ancestors, in place of the true tea. Some time during the years 1863 or 1864 some enterprising individual, who had become familiar with the manner of preparing and drying tea in China, commenced the trade of packing this in a similar manner, at the same time circulating through the newspapers that the *tea* plant grew largely in certain sections of our country; for a time the trader prospered, but, as it was not *tea*, it soon fell into disuse.

The subject of the *impurities in chloral hydrate* was mentioned at the last meeting, and was now called up, and discussed by Messrs. Boring, Maisch and others.

Mr. Boring stated that he had mentioned the subject at the last meeting in order that the members would give it some of their attention, and that we could compare notes at this one. His attention was directed to the subject by a paper of Professor Liebreich, which stated that only such chloral should be used as was in crystals and perfectly dry. He stated that all the crystal chloral in our market adhered to the side of the bottle, but that one sample gave no evidence of uncombined chlorine, while in another the evidence was decided; both samples reddened moistened litmus paper suspended in the bottles. He had no trouble with it practically, had had no complaints, but wanted to be sure that he was dispensing an article that came up to the standard of the authorities on the subject. If they give a false standard, from improper motives, they should be exposed.

Prof. Maisch remarked that of late years he had not had much practical experience with chloral; but from earlier experiments he was convinced that the shape of the crystals was no criterion of its purity, that pure chloral hydrate had a slight acid reaction, and that the density of the white vapors produced with a glass rod moistened with ammonia was largely influenced by the temperature. The practice of giving a little information about physical properties for the purpose of influencing trade was carried on in Europe as well as here; he did not believe that absolutely pure chloral hydrate had as yet been put into the market, and he was strengthened in this belief by the transactions of the Berlin Apothecaries' Society, where this question was incidentally ventilated. Of late, chloral chloroform, that is, chloroform made by the decomposition of chloral, had been bruited in Germany as the only article worthy of confidence for its purity, but the researches that have been instituted by Schacht and Bilz upon this claimed superiority of chloral chloroform had shown it to be entirely erroneous, as the chloral chloroform when treated with sulphuric acid became discolored very speedily, like the chloral from which it had been prepared, which is not the case with absolutely pure chloral, or with the chloroformum purificatum of the Pharmacopœia.

Dr. A. W. Miller exhibited some authentic herbarium specimens of plants gathered by Dr. J. F. Rothrock, Professor of Botany in the University of Pennsylvania, during an extended tour through the Western portion of our country. True

damiana, that from which the original description of Turnera aphrodiciaca was taken, and two specimens of Aplopappus, yielding also so-called damiana, were shown. Three specimens of Eriodictyon were shown, all of them indiscriminately called Yerba santa.

Prof. Maisch stated that the specimens heretofore described as E. Californicum had the leaves somewhat different from those shown and a characteristic appearance of being varnished upon the upper surface. A specimen of the latter will be submitted to Prof. Rothrock, who had very kindly offered to loan any specimens he had for the purpose of exhibiting at the pharmaceutical meetings.

Prof. Maisch stated that he had been examining different samples sold as Grindelia robusta, and concluded that probably three species are sold as such, and that much of it is G. squarrosa; he hoped that he would soon be able to report more fully upon the matter.

Prof. Maisch presented specimens of *Florida oranges*, having upon their rind what is called "rust," of a greenish brown appearance, and occasioned, as it seems, by a fungoid growth; it is stated that the same tree, in different years, will produce fruit sometimes thus affected and at others free from this defect.

The subject of obtaining the various products of the orange is one that might well engage the attention of those living in our extreme Southern States; already the juice of the sour orange has been utilized as a source of citric acid, and oil of petit grain, superior to almost any ever offered in our market, has been brought into commerce from this section, and there would seem to be no good reason why the volatile oils of lemon, orange and neroli, and orange-flower water of excellent quality should not be produced there also.

The preparation of bay rum was discussed for a short time, and elicited some remarks throwing light upon the subject. One formula, which produced an excellent article, was as follows: Four pints of alcohol, three pints of water, one pint of Jamaica rum, one drachm of oil of bay and twenty drops of oil of pimento; a few drops of aqua ammoniæ gives the requisite color to a whole gallon; some members employ a little less of the oil of myrcia.

On motion of Mr. Boring, the Registrar was directed to return, through Dr. Miller, a vote of thanks to Prof. Rothrock for his kindness in offering the loan of herbarium specimens to our College.

The use of various fixed oils was suggested for consideration at the next meeting.

On motion, adjourned.

T. S. WIEGAND, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

The Boston Druggists' Association held its second annual meeting January 22. The reports from the various officers were read, and show the Association to be in a healthy condition. It has made efforts, and will continue them, with the view of securing the repeal of the proprietary stamp tax during the present session of Congress. The following officers were elected for the ensuing year: President, Dr.

Thos. L. Jenks; Vice Presidents, Nathaniel J. Rust and Jos. Burnett; Executive Committee, A. Sigourney Bird, Thos. Doliber, Thos. Restieaux, Wm. S. Folger, Chas. C. Goodwin, Joel S. Orne and Geo. T. Sears; Secretary, William F. Horton; Treasurer, Samuel A. D. Sheppard.

The annual dinner was subsequently served in Parker's large dining hall, about seventy participating in the festivities, which, to judge from the toasts offered and the spirited manner they were replied to, must have been highly enjoyed by all.

Alumni Association of the Massachusetts College of Pharmncy.—The regular monthly meeting was held at the College rooms, January 3d, President Kelley in the chair.

Mr. Bartlett showed an apparatus for *coating pills with gelatin*, consisting of needles fastened in wood with points upward. The pills, when made, are stuck severally on the points of the needles, and then holding the block of wood in the hand, all the pills are dipped at the same time into the coating solution of gelatin. Mr. Bartlett had found by experiment that this solution could best be made as follows: French gelatin, 6 troyounces; water, 2 pints; dissolve by heat, and to the hot solution add 1 oz. alcohol; cover immediately very tightly to prevent escape of alcohol vapor, and allow to cool with occasional agitation. The alcohol is simply for the purpose of preserving the preparation. The pills should be dipped six times into the solution, which should be very hot and liquid. Allow each coating of gelatin to dry thoroughly before putting on the next. This usually requires several hours.

Prof. Markoe read an extract from Mohr, Redwood & Procter's Pharmacy, page 509, showing that substantially this process was used years ago, and that the alleged claim of certain manufacturers to any proprietorship in the process was unfounded.

Discussion here ensued as to the proportion of gelatin to be used. In the article read by Prof. Markoe, the proportion was 1 part gelatin to 2 parts water. Mr. Lincoln and others thought that for extemporaneous use a single dipping in a solution of gelatin would be the best plan. Mr. Bartlett stated that such had not been his experience. Thick or cool solutions of gelatin were apt to be stringy. Mr. Bartlett closes up the hole made by the needle by applying gelatin solution with a camel's hair pencil.

A long and lively discussion here ensued as to the use by educated pharmacists of coated pills, fluid extracts and such like goods, made by the large manufacturers. The general feeling was that we should discourage the use of all goods that cannot be tested easily by the pharmacist, to determine the quality, etc.

Several gentlemen took the ground that we should not attempt to make any sweeping statements relative to these goods, because it is a well-established fact that all goods can be made as well, and cheaper, on the large scale; that the large manufacturers have already obtained such a hold on the trade of the country that we should turn our attention more to regulate their practices, by buying goods only of those men who have proved themselves honest, paying them a fair price rather than to condemn all these goods by the wholesale. The objection of insolubility was acknowledged by all to be a serious one against the use of coated pills, more especially old sugar-coated pills.

The subject of *reduced iron* came up, the remark being made that there was a marked difference in the appearance of that usually bought by the pound and that imported in small half-ounce bottles. Prof. Markoe referred to an article by J. Creuse, published in the Proceedings of the American Pharmaceutical Association, 1874, and suggested that the grey sample was more likely to be purer than the black.

The selling at retail by wholesale druggists, and the offering of fancy goods by dry-goods dealers at lower prices than those at which they can be procured by most pharmacists, were discussed at some length, and various plans suggested as remedies for the growing evils, but none seemed to meet the general favor.

Messrs. Sheppard and Markoe gave an account of their recent visit to the laboratory of Dr. Squibb, and of a new form of percolator[1] used by him; and after some routine business the Association adjourned.

Alumni Association of the Philadelphia College of Pharmacy.—The fourth social meeting was held Thursday, January 3, President Mattison in the chair.

Mr. Trimble read a paper on the percentage of iron and chloride found by him in the various makes of solution of dialyzed iron (see page 60), and Mr. Herman Betz one on the preparation of sapo viridis (see page 65).

Mr. Mattison referred to two cases of poisoning by chlorate of potassium, one in which 300 grains were given in solution daily. On the fourth day toxic symptoms were produced, incessant vomiting was followed by death. In the other, 1 oz. was taken to prove its harmlessness; death occurred on the seventh day.

He also submitted an interesting article on the comparative value of some antiferments, those chosen being salicylic and benzoic acids, and sodium bisulphite; the result was largely in favor of benzoic acid (see page 62). Dr. Miller stated that it was taking the place of the former acid with the brewers, who use it to a great extent.

Specimens of fine imported pomades were shown by the same, and processes given for extracts to be made from them. An informal quiz on the Latin noun terminations followed; then adjourned to meet February 7.

WALLACE PROCTER, *Secretary.*

Cincinnati College of Pharmacy.—At the regular meeting, held January 9, the following officers were elected to serve for the ensuing year: President, George Eger; Vice President, F. L. Eaton; Recording Secretary, A. W. Bain; Correspondidg Secretary, Louis Schwab; Treasurer, Chas. Faust; Trustees for one year, F. L. Eaton, H. H. Koehnken, Dr. R. M. Byrnes, John Weyer, and for six months to fill unexpired term of the newly elected President, Dr. T. L. A. Greve.

The Paris Society of Pharmacy.—About twelve months since it was mentioned in this journal that the wish of the widow of the late Professor Gobley, to present a sum of money to the Société de Pharmacie, had suggested the proposition of securing the recognition of that Society as an "*établissement d'utilité publique*," so

[1] We hope soon to be able to publish a full description of this, in our opinion, very valuable contrivance. —EDITOR.

that it might be enabled legally to receive gifts of money from its members or others. This proposition was unanimously agreed to, and at a meeting held on the 4th of April, 1877, a committee was appointed to report on the subject. This it did in the following month, and then took the requisite steps to communicate with the government officials for the purpose of obtaining the desired object. A decree has now been issued by the President of the Republic granting the privilege sought, and confirming the modified statutes which had been drawn up to suit the altered circumstances of the Society. From among these statutes the following is selected as indicating in a general way the nature of the Society.

The object of the Society is defined to be the establishment of intimate relations among the pharmacists of France and of foreign countries as well as to improve the art of pharmacy and to advance the sciences which relate to it. The number of Members is limited to sixty, resident in Paris, besides which there are twenty Associates and one hundred and twenty Provincial Correspondents; the number of Foreign Correspondents as well as that of Honorary Members is not limited.

One of the necessary steps to obtain the recognition of the Government was the presentation of an historical account of the Society, setting forth its origin, organization, object, and the services it had rendered. From this it appears that the Society took its origin as a consequence of the suppression of the old College of Pharmacy, together with other trade guilds and fraternities, in 1791. The business of the pharmacist being thus thrown open to all without the necessity of special education, accidents became frequent, and gave rise to so many complaints that the Committee of Public Health, then presided over by the celebrated Dr. Guillotin, applied for and obtained a decree reviving the law and regulations relating to pharmaceutical education as well as to the preparation and dispensing of medicines. To quote the report, "The two years of anarchy which preceded this step served at least to teach a lesson that should not be forgotten, for they furnished in a high degree evidence of the necessity of regulating the practice of pharmacy by special laws. It was in vain that the freedom of trade was invoked, since it was out of place, and the interests of the public health ruled the whole discussion of the subject."

Subsequent to this decree the pharmacists of Paris, including, amongst other names eminent in science, Vauquelin, Pelletier, Bouillon le Grange, Le Canu and Parmentier, formed themselves into a voluntary society, having the object of promoting the progress of science, and especially of pharmacy, chemistry, botany and natural history. In 1797 the Directory recognized this Society under the title of the Free School of Pharmacy. Subsequently the title was changed to that of the Society of Pharmacy of Paris, its constitution and statutes being almost the same as those of the present day.

In 1809 an important step was taken in the establishment of an official organ of the Society under the title of the "Bulletin de Pharmacie," which in 1815 became the "Journal de Pharmacie et des Sciences Accessoires," and this in its turn was succeeded in 1842 by the "Journal de Pharmacie et de Chimie."

As regards the connection that exists between the teaching organization and the scientific society it is mentioned that the former rarely exists without being accompanied by the latter. In this manner, in France, the Academy of Medicine is the

necessary corollary of the faculty of medicine, whilst the Society of Pharmacy bears ths same relation to the Superior School of Pharmacy, and the provincial societies are in like manner associated with the local schools.

Since 1830 the Society has had the good fortune to have the position of General Secretary filled by Robiquet, Soubeiran and Buignet, whose contributions to science have entitled them to hold a high place amongst its cultivators. Other members of the Society have also contributed largely to the advancement of chemistry and its application, amongst whom may be named Serullas, Boullay, Pélouze, Robinet, Serturner, Pelletier, Caventou and Berthelot, who also belonged to the ranks of pharmacy, and only a few weeks since exchanged his position of Resident Member for that of Associate.

Among other services rendered by the Society of Pharmacy was the part taken at the Medical Congress in 1845, which, upon that occasion, placed the section of pharmacy upon a level with the section of medicine. The excitement caused among French pharmacists in the following year by the promulgation of the *ordonnance* relating to the sale of poisons induced the Society of Pharmacy to appoint a Commission for the purpose of demanding its revision, and it was successful in effecting this object.

In 1863, when a new edition of the Codex was in preparation, six members of the Society were appointed members of the Commission charged with this duty. At the same time the Society divided its sixty resident members into twenty sub-committees for the purpose of revising the mode of preparation and conservation of one or other class of medicaments, thus lending by virtue of their special competence an effectual support to the Commission, to the Academy of Medicine, and to the School of Pharmacy.

More recently, in response to applications from the provinces, a commission of five members was appointed to define the composition and preparatiou of new remedies, in regard to which there was want of uniformity and consequent inconvenience to medical men, pharmacists and patients. The report of this Commision has recently appeared in this journal.

In addition to these claims to be regarded as a "society of public utility" numerous prizes have been conferred for essays on subjects connected with abstract and applied science, among which may be mentioned those of Bussy on animal charcoal, Fremy on the pectous and gelatinous substances of fruit, and Pasteur of tartaric and racemic acids.—*Phar. Jour.*, Dec. 29, 1877.

EDITORIAL DEPARTMENT.

Preliminary Revision of the Pharmacopœia.—The Committee on Preliminary Revision of the Pharmacopœia appointed by the Philadelphia College of Pharmacy met for organization in September last, and elected Alfred B. Taylor chairman and William C. Bakes Secretary. The committee decided to meet semi-monthly, and a joint meeting is held every two months with the committees appointed by the College of Physicians and the Philadelphia County Medical Society. A series of

questions, prepared by Mr. A. B. Taylor on behalf of the committee of the Philadelphia College of Pharmacy, are being considered by the several committees.

1st. Shall the present Pharmacopœia be so altered as to include only *one* alphabetical arrangement in the whole work? This has been adopted affirmatively.

2d. Shall the description of physical properties of drugs and chemicals be extended? If so, how far? Botanical? Chemical? This was also adopted.

3d. Shall the formulas for the manufacture of chemicals be omitted (with the exception of those preparations where different results are produced by different processes), and descriptions of the substances be substituted, with tests of identity, purity, etc.? This was also adopted.

The committee have agreed to abandon measures of capacity and substitute parts by weight, and to propose that a posological table of active drugs be placed in the back of the book; that the latest chemical symbols and equivalents be given, and that the temperature be stated in degrees of Centigrade and Fahrenheit scales.

The committee favor the introduction of powdered extracts, and that all fluid extracts represent grain for grain.

On the part of the committee of the Philadelphia College of Pharmacy, the work has been divided among the following sub-committees:

Materia Medica—John M. Maisch, C. L. Mitchell, W. B. Webb.
Chemical Formulas—Chas. Bullock, Chas. Spannagel, A. B. Taylor.
Chemical Descriptions and Tests—A. W. Miller, R. Fairthorn, Ed. Gaillard.
Fluid Extracts, Tinctures, Wines, Oleo Resins, etc.—I. J. Grahame, S. S. Bunting, A. Robbins.
Plasters, Extracts, Liniments, Mixtures, etc.—J. P. Remington, H. G. Jones, Wallace Procter.
Syrups, Powders, Pills, Troches, Suppositories, etc.—J. T. Shinn, W. C. Bakes, Thos. S. Wiegand.

At the last joint meeting the following resolution was adopted: That no weights or measures be introduced into the formulary of the United States Pharmacopœia except when required for convenience of dose, and that then the weights be in grains with the corresponding metric weights in brackets.

Most of the points alluded to above have also been discussed and decided by the committee appointed for the same purpose by the American Pharmaceutical Association, and if they should be agreed upon by other medical and pharmaceutical societies undertaking the preliminary revision of the Pharmacopœia, it may be taken for granted that the results of their labors, when presented to the Decennial Pharmacopœia Convention in 1880, will agree in so many respects that the final revision may be accomplished in a much shorter time than heretofore.

Italian Pharmacopœia.—Italy has, as yet, no national pharmacopœia, a compilation by Prof. Orosi having been generally employed. But the want of a recognized standard is felt, and we learn from the "Pharm. Zeitung," that a commission for preparing such a pharmacopœia has been appointed by the government, and organized at Rome, October 2d, 1877, under the presidency of Senator Cannizaro, Professor of Chemistry in the University at Rome.

Pharmaceutical Legislation in Pennsylvania.—We learn from the daily papers that on January 22, Hon. Mr. Ringgold, of Philadelphia, introduced a bill *to regu-*

late the practice of pharmacy and sale of poisons, and to prevent adulteration of drugs, etc., in Pennsylvania. At the time of going to press we have not yet received a copy of the proposed bill, nor have we been able from inquiries made in Philadelphia to learn its provisions or by whom it was drafted. It being a matter which concerns all the pharmacists in the State, it is but proper that they should be heard in relation to the proposed measure. The number of States in which pharmacy laws apply to the entire State is gradually becoming greater, and will doubtless ultimately embrace the whole territory of the United States. The pharmacists should, therefore, be watchful, so that the coming legislation may be wisely guided towards the great aim of such measures, viz., full protection of the public without being oppressive upon the pharmaceutical practitioner. In our opinion, the present would be a fit occasion for calling a convention of Pennsylvania pharmacists at the State Capital, and for the permanent organization of a State pharmaceutical association; and, in furtherance of this object, we renew our suggestion, made in the May number last year, that the pharmacists of Harrisburg take the matter in hand and call such a convention at an early date. From the experience in other States, we judge that there will be no difficulty in Pennsylvania to establish a useful and influential organization.

Correspondents will greatly oblige the Editor by giving their correct address, so that replies may reach them. Several letters were recently returned in consequence of this omission

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Correction.—In the list of graduates of the Philadelphia College of Pharmacy, recently published, the name of Mr. George Blinkhorn, a graduate of the class of 1857, was inadvertantly omitted.

WILLIAM C. BAKES,
Secretary Board of Trustees.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Year-Book of Pharmacy; comprising Abstracts of Papers relating to Pharmacy, Materia Medica and Chemistry contributed to British and Foreign Journals from July 1, 1876, to June 30, 1877; with the Transactions of the British Pharmaceutical Conference at the Fourteenth Annual Meeting, held in Plymouth, Aug., 1877. London: J. & A. Churchill, 1877. 8vo, pp. 653.

Proceedings of the American Pharmaceutical Association at the Twenty-fifth Annual Meeting, held in Toronto, Ont., Sept., 1877 Philadelphia: Sherman & Co., Printers, 1878. 8vo, pp. 647. Price, by mail, bound, $6.50.

We are enabled to notice the publication of these annuals at the same time, each one having been distributed a little over four months after the close of the respective annual meeting. We have on former occasions discussed the merits and intrinsic value of both publications, and it remains only to state that those before us come fully up to what may be reasonably expected of them. If we should wish for any improvements, it would be, in the Year-Book, a more systematized arrangement and briefer abstracts of *some* of the papers, and in the Report on the Progress of Pharmacy of the "Proceedings," more extended notices of *some* of the researches. It is obvious that such annual reports cannot be intended to entirely supercede the consultation of the original papers, but that they should rather furnish the *full out-*

line of all more important observations, leaving to those who may be specially interested, to procure the journals or works containing the papers *in extenso*. As to what constitutes such proper "abstracts" must necessarily be decided by individual views, and in a number of cases the British and American reporters differ very considerably in the extent or limitation of these abstracts.

The papers read before both associations are quite creditable, though a difference is here, likewise, noticeable. While our British brethren are treated with quite an array of strictly scientific investigations, the papers presented to the American Association are preponderantly of a practical character, though such of a more heavy calibre are by no means wanting.

Of the two associations, the British, which is the youngest, is the more prosperous, having enrolled almost double the number of members than its older sister. Moreover—and we are pleased to put it on record—the Conference has had on hand at the close of its financial year, June 30, 1877, a cash balance of over £65 besides an investment of £400, of which the annual interest only is used. In addition thereto there is a separate fund, known as the Bell and Hills library fund, which was started in 1869 by Mr. Thos. H. Hills, and now amounts to £200, which sum is invested, the interest being used for presenting to the pharmacists of the cities and towns in which the Conference may meet, ten guineas' worth of books, as an addition to or nucleus for the formation of a library where the assistants or apprentices may assemble for the purposes of study and mutual improvement. The total amount invested by the British Conference is therefore $3,000.

The financial condition of the American Association has been plainly discussed at the last meeting; the investments amount only to about $575—the exact figures not being given—and to an additional donation of $525 conditionally made at Toronto. If these conditions are fulfilled, that is, if at least an equal sum be contributed by the next meeting, with the view of aiding scientific investigations, the investments will be swelled to about $1,700, or perhaps $2,000, the interest on nearly all of which will, however, be available only for special purposes, and not for the general expenses of the Association. It has proved to be a wise policy to establish at an early date a reserve fund, which has enabled the Conference to again devote from the general fund £60 for the purchase of material to be used for scientific research.

The financial prosperity of the Conference is in the main due to the large number of promptly paying members. There is room for improvement with us; hundreds, even thousands of eligible persons remain unconnected with the "Association," while they should be members, not only for the purpose of promoting its objects, but, likewise, because they would be directly benefitted to a much larger extent than the amount of the annual dues. The "Report on the Progress of Pharmacy" in the one and the "Year-Book" in the other publication, are and should be familiar desk companions of the pharmacist. It is to be hoped that the American Pharmaceutical Association may in a short time not merely have representatives in all the States of North America, but enrol among its members the large majority of the reputable pharmacists, whether in business on their own account, employed by another or retired from business.

The American Pharmaceutical Association has 24 honorary members, all except two being residents of Europe. The British Pharmaceutical Conference has 17 honorary members, of whom eight reside on the North American continent. Mr. Carlos Murray, Buenos Ayres, included in the list, is, we presume, Professor Carlos Murray who died there in July, 1874.

The Philadelphia Druggist and Chemist, devoted to Materia Medica, Pharmacy, Chemistry, Therapeutics, and the Collateral Sciences. C. C. Vanderbeck, M.D., Ph.D., editor and proprietor. 8vo, monthly. Price, $1.50 per year.

This neatly printed journal, the first number of which is before us, is introduced by the editor as follows:

"In these days there seems to be no end of journal-making, and at the appear-

ance of each new one the question is asked, For what good or purpose? With this issue we present to our readers and friends our 'new-born.' Is there a niche for us to fill? We feel assured there is; otherwise the issuing of the 'Druggist and Chemist' would never have advanced beyond the mere conception. The number of pharmaceutical journals in the United States are comparatively few; in Philadelphia but one. Our field is of such a character, and so different from that of the 'Journal of Pharmacy,' that we can safely say that we occupy an unclaimed position in this city."

The number contains brief original articles on resin of podophyllum, manufacture of pepsin, syrup of ipecac, excipients, and on eye diseases of the poor; also translations, editorials, abstracts, etc., covering altogether 19 pages, and followed by a full price current. The latter, together with such business as concerns the practical druggist, is in charge of Mr. Evan T. Ellis.

We wish this new claimant for support a long career of usefulness and prosperity.

A Guide to Chemical Testing; designed for Medical and General Use, and expressly arranged for Practical Study in Schools and Colleges. By J B. Hough, M.D., Professor of Chemistry and Toxicology in the Miami Medical College of Cincinnati, etc. Cincinnati: Printed by the Cincinnati "Lancet" Press, 1877. 8vo, pp. 102

The preface tells us that "this little manual was prepared expressly to meet the wants of those who have but little time to give to practical chemistry"; and that "it is not designed as a reading or reference book, nor as a substitute for any of the excellent large works upon the same subjects, but as a table manual or guide to practical laboratory work." This object has been kept in view throughout the work, but we should wish the author to have stated the common conditions under which the reactions occur or fail, such as acidity or alkalinity of the solutions, and the application of heat. It is not necessary, and in a work of this kind impossible, to "explain every involved and collateral point," and we have no fear "of converting the pupil into a mere memorizing machine" by calling attention to such conditions. In ¶ 36 and 41, for instance, it is merely stated that stannous and stannic compounds are precipitated by $(NH_4)_2S$, and in ¶ 43, that for cadmium the reagents for tin may be used and the results compared

The book contains two chapters on *urinalysis* and on the detection of *inorganic* and *organic poisons*, which will prove very convenient and valuable, also a number of useful tables.

A commendable feature is the use of convenient and expressive nomenclature; we entirely agree with the author, when he states in the preface: "Such terms as dihydric sulphide, hydric sulphate, hydric hydrate, etc., not only sound affected and pedantic, but are less convenient than their common names."

Medicinal Plants; being Descriptions with Original Figures of the Principal Plants employed in Medicine, and an Account of their Properties and Uses. By Robt. Bentley, F.L.S., and Henry Trimen, M.B., F.L S. Philadelphia: Lindsay & Blakiston, 1877. Part xxiv. Price, $2.

The part of this valuable work now before us contains excellent plates and descriptions of the following plants: Cæsalpinia bonducella, *Roxb.* (the bonduc seeds of India, used as an antiperiodic), Elettaria cardamomum, *Maton*, Euphorbia resinifera, *Berg.*, Ferula scorodosma, *Bent. and Trim.* (the Persian asafœtida plant), Hydrocotyle asiatica, *Lin.* (Indian pennywort, an alterative tonic), Peumus boldus, *Molina* (the boldo of Chili, used as a tonic and stimulant to digestion), and Rheum palmatum, *Lin.*

We acknowledge the reception of the following reprints of researches conducted in the laboratory of Prof. Dragendorff, at Dorpat:

Ueber die Bestandtheile des Mutterkornes. (On the Constituents of Ergot.) By Prof. Dragendorff.

Zur Formel der Frangulinsäure. (The Formula of Frangulic Acid.) By E. Keussler.

Bestimmung der Alkaloide in den Chinarinden. (Estimation of the Alkaloids in Cinchona Barks.) By Edwin Johanson.

Ueber die Alkaloide des Delphinium staphisagria. (On the Alkaloids of Stavesacre Seeds.) By Provisor Marquis.

Ueber Calcaria Phosphorica. (On Calcium Phosphate; see "Amer. Jour. Phar.," 1877, p. 512.) By E. Hirschsohn.

Etude sur les térébenthines et specialement sur la térébenthine de Bordeaux. (On the Turpentines, and especially on the Turpentine of Bordeaux.) By Albert Fronsac.

This is a creditable thesis, presented to the Superior School of Pharmacy at Montpellier.

The reception of the following pamphlets is hereby respectfully acknowledged:

Contributions to the History of Medical Education and Medical Institutions in the United States of America, 1776—1876. Special Report, prepared for the United States Bureau of Education by N. S. Davis, A.M., M.D.

Higher Medical Education, the True Interest of the Public and of the Profession. Introductory Address by Wm. Pepper, M.D., Professor of Clinical Medicine in the University of Pennsylvania.

Higher Medical Education—The New Departure in Medical Teaching in the University of Michigan. Introductory Lecture by A. B. Palmer, A.M., M.D., Prof. of Pathology and the Practice of Medicine.

Medical Chemistry and Toxicology. An Address delivered before the International Medical Congress at Philadelphia, September, 1876, by Prof. Th. G. Wormley, M.D., etc.

Note sur la formation de l'acide oxalique pendant la destruction des matières animales, par le procédé de Fresenius et Babo. (On the Formation of Oxalic Acid during the Destruction of Animal Matters by the Process of Fresenius and Babo.) By M. Edm. Van Melckebeke, D.Sc., Pharmacien, etc., Antwerp.

Etude sur les liquides pathologiques de la cavité péritonéale. (On the Pathological Liquids of the Peritoneal Cavity.) By Dr. C. Méhu, Pharmacien, Paris.

On Keratitis bullosa. By Dr. M. Landesberg, of Philadelphia.

What Anæsthetic shall we Use? By Prof. Julian J. Chisholm, M.D., Baltimore. (Argument in favor of chloroform.)

Cholera Infantum—Treatment of the Cold Stage. By E. F. Wells, M.D., Minster, O.

Aiken as a Health Station. By W. H. Geddings, M.D., Aiken, S. C.

The Annual Medical Directory of Regular Physicians in the State of Illinois for the Year 1878. By F. A. Emmons, M.D., Chicago, Ill.

OBITUARY.

JAMES A. TAYLOR, a prominent and highly respected druggist and apothecary of Atlanta, Ga., died at Hot Springs, Ark., Jan. 14, at the age of 49 years, 1 month, and was buried at Atlanta, Jan. 17. At the latter place the deceased had been in business for over 25 years.